REPORT RESUMES

ED 019 742 24 EA 001 329

ATTITUDES AND PERCEPTIONS OF DESIRABLE TRAITS AND BEHAVIORS OF TEACHERS. FINAL REPORT.

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REPORT NUMBER BR-5-0330 PUB DATE 30 SEP 67
CONTRACT OEC-5-10-024
EDRS PRICE MF-$1.25 HC-$11.32 281P.

DESCRIPTORS- *ATTITUDES, *PERCEPTION, *TEACHER CHARACTERISTICS, *TEACHER BEHAVIOR, FACTOR ANALYSIS, *EFFECTIVE TEACHING, EVALUATION CRITERIA, EDUCATIONAL ATTITUDES, CORRELATION, ATTITUDE TESTS, HYPOTHESIS TESTING, Q SORT, STATISTICAL ANALYSIS, NEW YORK CITY,

IN A STUDY THAT WAS PRIMARILY CORRELATIONAL IN NATURE, RELATIONSHIPS BETWEEN EVALUATORS' ATTITUDES TOWARD EDUCATION AND PERCEPTIONS OF TEACHING BEHAVIOR WERE DETERMINED BY ADMINISTERING QUESTIONNAIRES TO OVER 3,000 ELEMENTARY AND SECONDARY TEACHERS AND GRADUATE STUDENTS OF EDUCATION FROM INDIANA, MICHIGAN, NEW YORK, NORTH CAROLINA, TEXAS, AND WISCONSIN. THREE GENERAL QUESTIONS GUIDED THE STUDY--(1) THE AFFECT OF ATTITUDES TOWARD EDUCATION ON PERCEPTIONS OF DESIRABLE TRAITS AND BEHAVIORS OF TEACHERS, (2) THE FACTOR STRUCTURE AND CONTENT OF EDUCATIONAL ATTITUDES, AND (3) THE FACTOR STRUCTURE AND CONTENT OF PERCEPTIONS OF DESIRABLE TRAITS OF TEACHERS. SECOND-ORDER FACTOR ANALYSIS REDUCED A NUMBER OF EDUCATIONAL ATTITUDE FACTORS TO TWO LARGE FACTORS, PROGRESSIVISM AND TRADITIONALISM. SIMILARLY, TWO SECOND-ORDER FACTORS WERE FOUND TO UNDERLIE TEACHER-TRAIT PERCEPTIONS, PERSON-ORIENTATION AND TASK-ORIENTATION. IT WAS FOUND THAT PROGRESSIVE ATTITUDES TOWARD EDUCATION WERE POSITIVELY AND CONSISTENTLY CORRELATED WITH PERSON-ORIENTED TEACHER TRAIT PERCEPTIONS. TRADITIONAL ATTITUDES TOWARD EDUCATION WERE SIMILARLY CORRELATED WITH TASK-ORIENTED TEACHER TRAIT PERCEPTIONS. (AUTHOR/JK)

ED019742

FINAL REPORT
Project No. 5-0330 - 24
Contract No. OE 5-10-024

ATTITUDES AND PERCEPTIONS OF DESIRABLE TRAITS AND BEHAVIORS OF TEACHERS

September 1967

UNITED STATES DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

EA 001 329

Attitudes and Perceptions of Desirable Traits and Behaviors of Teachers

Project No. 5-0330
Contract No. OE 5-10-024

Fred N. Kerlinger
and
Elazar J. Pedhazur

September 30, 1967

The research reported herein was performed pursuant to a contract with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

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Acknowledgments

A number of individuals contributed to the research described in this report. Professor Theodore Newcomb gave valuable advice, encouragement, and criticism, especially in the study's early stages. Mr. Raoul Buhler helped the study materially by altering his PSTAT computer program to make second-order factor analysis possible. Dr. David Saunders and Leslie McLean advised us on certain statistical problems. Mrs. Eleanor Kolchin and Mr. Thomas Keenan helped substantially with our computer programming. The extensive data analyses were made possible with the generous cooperation of the Computing Center, Courant Institute of Mathematical Science, New York University.

More than half our subjects were obtained in states other than New York. The following individuals helped us obtain data from these subjects: Professors Roy Sommerfeld, Gerald Kowitz, William Lynch, Wilbur Williams, and Thomas Linton. Dr. Bernard Bryan, Mr. Martin O'Neill, Mr. Calvin Sloan, and Mrs. Frances Bennett helped us obtain our first New York samples of teachers. Dr. Lawrence Castiglione and Mrs. Marie Squicciarini helped us obtain our late New York samples.

Professors Nathaniel Gage, Philip Jackson, Harold Mitzel, Ellis Page, and Richard Turner judged our teacher characteristics factor arrays.

We are deeply grateful to all these individuals for their help and cooperation. We are also grateful to the many subjects who communicated their attitudes and perceptions to us. Among these subjects, special thanks should be given to those individuals who devoted more than an hour responding to our Q sorts.

Typing and handling a long and involved report are always difficult. We want to offer special thanks to Sara Shelton and Valerie Behrens for a job competently and carefully done.

Chapter I

The Nature of the Problem

What is an effective teacher like? What does she do? We do not really know. Mitzel says: "More than half a century of research effort has not yielded meaningful, measurable criteria around which the majority of the nation's educators can rally. No standards exist which are commonly agreed upon as the criteria of teacher effectiveness" (Mitzel, 1960). Ryans (1960a) and Biddle (1964) agree.

Most educators may agree that good teachers should possess certain characteristics and should behave in certain ways. For example, they may agree that a certain minimum of intelligence is necessary--though no one knows what this minimum is--and that a "good" teacher should be kind and not cruel, dependable and not undependable, imaginative and not dull. They may also agree that a teacher should be punctual, self-controlled, well-adjusted. Indeed, most educators, if allowed free choice, will probably say that teachers should be alert, just, fair, efficient, resourceful, and so and on through a long list of "good" adjectives (Barr, 1950; Mitzel, 1960; Ryans, 1960b). We demand, in short, that teachers be more virtuous than individuals in other occupations.

Agreement on "good" characteristics, however, does not solve the criterion problem. The trait list must be narrowed since no individual can possess all, or even most, of the characteristics. Which traits are the crucial ones? Agreement is now more difficult. Can we all agree, for instance, that teachers should be moral, religious, warm, aggressive, loyal, and sensitive? Are these traits more or less important than such traits as dependable, intelligent, conscientious, and thorough?

Although there is no really satisfactory evidence on the qualities of effective teachers, educational life must go on. Teachers must be hired or not hired, fired or not fired. Tenure decisions must be made. What are the determinants of these decisions? What do administrators and board of education members look for in teachers? What are the determinants of judgments and estimates? Are there, for example, perceptual and judgmental factors within the administrator of which he is more or less unaware, factors that influence his personnel decisions as well as decisions on other matters? The major purpose of the research reported herein was to test the proposition that there are such factors or determinants and that they are an important part of judges' perceptions of the effective teacher.

The approach of the study bypassed the difficult criterion and prediction problems and concentrated upon the criterion-setter and judge. The study tested, in a variety of ways, the basic hypothesis: Judgments of the characteristics and behaviors of the "good" or effective teacher--and the "bad" or ineffective teacher--are in part determined or influenced by judges' attitudes toward education.

A second large purpose of the research was to study the factor structure and content of attitudes toward education. While a great deal has been written about what are, in effect, attitudes toward education, little empirical research has been done to test accepted and assumed notions about them. For example, around the turn of the century John Dewey (1902) outlined two fundamental points of view on education which were later called "progressivism" and "traditionalism." Since then, thousands of words have been written and spoken about progressivism and traditionalism, but little research has been done to determine their empirical "reality."

Most educators probably recoil from the dichotomy implied by the terms progressivism and traditionalism. There is little doubt, however, that individuals are often sharply divided in their beliefs on curriculum, subject matter, method, discipline, and the like (see Brubacher, 1962; Morris, 1961; Dupuis, 1966). The usual assumption about the underlying nature of educational attitudes and beliefs seems to be that they are unidimensional and bipolar. This means, of course, that educational attitudes form a single continuum at one end of which is extreme progressivism and the other end extreme traditionalism. It also means that the progressive is an anti-traditionalist and the traditionalist an anti-progressive. There is little research evidence to support this assumption. Indeed, the evidence to be presented in this report indicates that the assumption is probably incorrect. A major proposition of the present study is that educational attitudes are dualistic and, in general, bipolar only under certain relatively infrequent conditions. This means that there are two relatively independent dimensions or factors of educational attitudes that correspond to Dewey's descriptions and that can be called "progressivism" and "traditionalism."

A third purpose of the research was to study the factor structures and content of perceptions of desirable traits and behaviors of teachers. The assumption behind most of the thinking and writing about teacher characteristics, like the assumption behind the nature of educational attitudes, is that the characteristics range themselves on a continuum from very desirable to very undesirable. This assumption has rarely been questioned--and is probably wrong, if the evidence to be reported later can be trusted. In fact, part of the present research is based on the notion that the domain of teacher characteristics is multidimensional and not unidimensional. Therefore, perceptions of teacher characteristics will break down into two or more factors. Two of these factors should appropriate most of the common factor variance and should be congruent with the two basic factors of educational attitudes.[1]

In sum, the present study has three major purposes: (1) to determine the relations between attitudes toward education and perceptions of desirable characteristics and behaviors of teachers; (2) to study the factor structure and content of attitudes toward education; and (3) to study the factor structures and content of perceptions of teacher characteristics and behaviors. It must be emphasized that the study is not concerned with the actual traits and behaviors of teachers. Its focus is on the perceptions and judgments of these traits and behaviors and on the relation between educational attitudes and these perceptions and judgments. Such an approach accomplishes two things. One, it bypasses the old and somewhat ambiguous problem of the actual traits possessed by effective and ineffective teachers. Second, it may lay a partial foundation for theory and research on the important problems of educational decisions and how they are made. (See Kerlinger, 1963.)

The study was done in five phases, and the organization of this report reflects these phases. In Phase I, the relations between attitudes toward education and perceptions of teacher characteristics were explored in a *Q*-methodological fashion (Kerlinger, 1966). Judges or persons educational attitude and perception factors were studied and related. The emphasis of this phase was strongly on the judge and his judgments of the desirable traits of teachers. In Phase II (and subsequent phases), an *R*-methodological approach was used. Scales constructed to measure attitudes toward education and perceptions of desirable teacher characteristics were administered to teachers and graduate students of education in New York, and the relations were studied using correlation, factor analysis, and exact probability tests in the analysis of the data.

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[1] While a theory of attitudes has been developed to explain the structural attitude predictions of the study (Kerlinger, 1967a), no comparable theory has been developed, nor does there seem to be any theory available, to explain the above predictions about the factor structures of perceived traits and behaviors. We will attempt a partial explanation later.

In Phase III, a new and more reliable attitude scale was constructed. Essentially the same procedure used in Phase II was followed, except that the new attitude scale was used with the trait perceptions instruments. The samples of teachers and students to whom the scales were administered, however, were larger and more widely dispersed in the United States. The data obtained in this phase are considered the basic data of the study.

New instruments to measure both educational attitudes and trait perceptions were constructed in Phase IV on the basis of the analyzed data of Phases II and III. These instruments were administered to samples in New York, Indiana, Michigan, and North Carolina. The analysis was much the same as that of Phases II and III except that a "crucial" factor analytic test of the basic study hypothesis was made.

Phase V is a catch-all. It includes the sub-studies done on problems related to the main problems. One of these explored the relations between attitudes toward education and perceptions of desirable teacher behaviors. Like the study of Phase I, it was primarily a Q study. Another sub-study examined the relations between educational attitudes and perceptions of the teacher role. A third investigated pseudoprogressivism and its influence on assessments of teacher behavior. A fourth set of studies explored possible correlates of educational attitudes and trait perceptions. The objective of doing this last set of studies was to examine the relations between attitudes and perceptions and certain supplementary variables.

Chapter II

The Theories, Problems, and Hypotheses

Two theories guided this research. The first and more immediately relevant to the main study problem is directive-state or social perception theory (Allport, 1955, Chs. 13, 14, 15; Bruner, 1951, 1958; Bruner & Postman, 1951; Postman, 1951, 1953). The second, a structural theory of social attitudes that may be called a theory of criterial referents of attitudes, was developed during the study (Kerlinger, 1967a). The two theories will be discussed separately in this chapter, and their implications for the present study brought out. The chapter ends with statements and discussions of the study problems and hypotheses.

Directive-State Theory

Social perception is "the manner in which one person perceives or infers the traits and intentions of another" (Bruner, 1958, p. 85). It also includes socially influenced perceptions of groups, individuals, and objects. The cultural groups of which we are members, for instance, influence the ways we see, know, and judge the individuals of our own and other groups. The perceptions and judgments of Jews, Gentiles, Protestants, Catholics, Negroes, and whites are to a considerable extent influenced by group-centered attitudes and values (Newcomb, 1950, pp. 94-96, 210-232, 516-517, 574-587; Sherif & Sherif, 1956, pp. 66-73).

Directive states are the motives, needs, emotions, attitudes, and values of individuals. The basic notion of directive-state theory is that the perceptions of the individual are influenced not only by the properties of stimuli and the environments in which they are embedded, but also by the internal states of the individual--his values, attitudes, motives, and so on. The central directive state of this research is attitudes, specifically attitudes toward education.

An *attitude* is a complex and enduring structure of cognitive, perceptual, motivational, and emotional components that predispose the individual to behave toward cognitive objects in certain ways (Krech & Crutchfield, 1948, p. 52; Newcomb, 1950, pp. 118-119). In short, an attitude is a set, a readiness, a predisposition to behave in certain ways toward things in the environment. And these things are usually significant social objects like groups, behaviors, institutions. Certain important attitudes have cognitive objects that are highly complex and abstract: general social attitudes, attitudes toward religion, attitudes toward education.

Attitudes are probably partial determinants of many perceptions and judgments, but particularly of perceptions and judgments of complex objects subject to ambiguous interpretation.[1] (See Sherif & Hovland, 1961, pp. 94-96, 125-126, 180-185; Sherif & Sherif, 1956, pp. 81-85.) The objects of perception and judgment of this study, teachers and their traits and behaviors, are complex cognitive objects subject to ambiguous interpretation. Educational attitudes are the directive states believed to be important determinants of these perceptions and judgments. Attitudes, then, should be particularly important in influencing perceptions of the effective teacher and his traits because attitudes germane to the cognitive objects being judged are predispositions to behave toward the judged cognitive objects and because the cognitive objects of the perception are complex and subject to ambiguous interpretation. Attitudes, in other words, are ready-made generalized choices available for use when appropriate cognitive objects, in this case teachers and their characteristics, are judged.

Directive-state theory is a more or less systematic formulation of something well-known for centuries: men's motives affect how they see things. The classic case is the lover's vision of the beloved. The conservative views civil rights quite differently from the liberal. The pupil and the teacher see subject matter differently. Indeed, it may even be said that the teacher's main job is to bring about greater perceptual congruence between herself and pupils. Existing evidence, as we will see later, seems to indicate that perceptions are influenced by central directive states. Is it unreasonable to suppose that educational judgments, particularly judgments of effective teachers, are affected by the attitudes of the individuals making the judgments?

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[1] In the above discussion the words "perception" and "judgment" are used almost interchangeably. While judgments are not perceptions (see Johnson, 1955, pp. 284-285), the similarities are sufficient to permit use of both words. Perception is usually considered an immediate act of awareness of environmental objects plus some apprehension of the "meaning" of the objects (Allport, 1955, p. 1). Judgment involves discrimination, comparison, and choice; it is ordinarily more deliberate than perception. The meaning of "perception" in this research, then, is quite broad. It is not inaccurate to say that we are here thinking of perceptual judgments or judgmental perceptions. For a discussion of perception that is close to its present use, see Allport (1955, pp. 364-369).

A general hypothesis springs from this theoretical reasoning: Judgments of the effective professional in any field are in part a function of the attitudes held by the members of the profession toward the field and its substance, roles, and work. Asked to evaluate a physician, say, his fellow physicians' judgments will in part be affected by the physicians' attitudes toward medicine. An ardent AMA member's attitudes toward medicine are probably quite different from those of a non-AMA member. According to our hypothesis, these two professionals' perceptions of the physician will also differ. It can further be hypothesized that the clearer and less ambiguous the objects of perception, however, the less will attitudes affect such judgments. Attitudes should affect educators' judgments more than physicians' judgments, since the criteria of a good physician are more concrete and specific than the criteria of a good teacher. (See Ryans, 1960a, Ch. 2.)

Teacher Effectiveness Research

There is a great deal of research on teacher traits and teacher effectiveness. Most of it, however, is only indirectly relevant to the present study. It will therefore be referred to only briefly and summarily. The relatively small body of research that tests directive-state theory propositions is more directly relevant to the study and will be examined in greater detail.

Comprehensive summaries on teacher traits and effectiveness have been prepared by Barr (1948, 1950), Getzels & Jackson (1963), Mitzel (1960), Ryans (1960b), and Sanford & Trump (1950). One of the major conclusions of these writers was mentioned earlier: there are no commonly accepted criteria of teacher effectiveness (Biddle, 1964; Mitzel, 1960; Ryans, 1960a). Moreover, one gets the impression, on reading the research, and especially the above-mentioned summaries, that most teacher effectiveness research has been useless. A more conservative and balanced statement is that it has not yielded results commensurate with the effort put into it. From a scientific point of view we do not know what a "good" teacher is like, even though promising beginnings have been made by Ryans (1960a) and others (see Biddle & Ellena, 1964).

One of the principal reasons, perhaps, for the relatively low yield of teacher effectiveness research has been lack of theory orientation. Mitzel and Ryans agree that research on teacher effectiveness has been largely futile because it has neglected theory. Getzels & Jackson (1963), too, stress this point in their large review of the subject. So does Biddle (1964). The present study, as indicated earlier, will be grounded in social psychological and cognitive theory.

Although most of the teacher effectiveness research is not too relevant to the present study, many studies that use the basic approach of this study have been done. This approach consists of asking "experts" what characteristics effective teachers should or do possess. Perhaps the best-known and one of the oldest of these studies is that of Charters & Waples (1929), in which a large list of noun-traits was reduced, through ranking by educators, to a smaller list of 25 traits believed to be important in judging teachers. The Charters and Waples traits were used in an exploratory phase of this study (see Kerlinger, 1966).

Barr (1948, 1950) has summarized many of the earlier studies. He concludes that although the research has added materially to our understanding of desirable traits and abilities, ". . . it is apparent that the identification and definition of teaching competencies is as yet by no means satisfactory." (Barr, 1950, p. 1453.) He goes on to say that we do not have an adequate definition of teaching efficiency. Very significantly for the present research, he also says that it is possible that many of the assumptions behind efforts to identify traits and abilities are not sound. One of these assumptions, tested in this study, is that all "competent" judges of teachers are alike in their basic views on education, views that may conceivably affect their judgments. We dispute this assumption and say that the judgment of desirable teacher characteristics depends to some extent on the attitudes of the individuals doing the judging. There seems to have been no research on this problem.

There also seems to have been no research on the basic relations studied in this research, namely the relations between attitudes and perceptions of desirable traits and behaviors of teachers. The most pertinent research is probably that of Ryans (1960a). One of Ryans' most significant findings, at least in the present research framework, is his three patterns of teacher behavior, derived from factor analyses of extensive observations of elementary and secondary classroom teachers: $\underline{X}_o$--friendly, understanding vs. restricted, aloof, egocentric behavior; $\underline{Y}_o$--systematic, businesslike, responsible vs. unplanned, slipshod behavior; $\underline{Z}_o$--stimulating, imaginative vs. dull, routine behavior (*ibid*., Ch. 4). Although the three patterns could be isolated and identified factor analytically, they were positively and often substantially correlated (ibid., pp. 124-125). Later, when we report our own findings on perceptions of teacher traits, we will see a marked similarity between Ryans' factors and ours.

Research on Attitudes Toward Education and a Criterial Referent Theory of Attitudes

Although attitude has been a central social psychological concept for many years (Murphy, Murphy, & Newcomb, 1937, Ch. XIII), theoretical attitudinal work has been relatively scarce (Smith, Bruner, & White, 1956, p. 4). And, aside from psychometric investigations, basic attitudinal research has also been scarce. Katz & Stotland (1959) discuss the "rank empiricism" and phenotypic work of factually minded investigators with any measures that can be remotely justified as indicators of the concepts with which they were concerned (ibid., p. 471). Recent attempts to formulate attitude theory, moreover, seem to have been dominated by the problem of attitude change (Katz, 1960; Katz & Stotland, 1959; Rosenberg, 1960). Attempts to formulate attitude theory that explains the structural nature, the factors behind attitudes and the interrelations of the factors, have been very scarce, almost nonexistent.

We have already defined an attitude as a complex and enduring structure of cognitive, perceptual, motivational, and emotional components that predispose the individual to behave toward attitude referents (usually called "cognitive objects") in certain ways (Krech & Crutchfield, 1948, p. 152; Newcomb, 1950, pp. 118-119). Another way to define attitudes, which stresses beliefs and which is especially pertinent to this study, is: an attitude is an enduring structure of descriptive, evaluative, and exhortative beliefs that predispose the individual to behave selectively toward the referents of the attitude. This definition is based in part on Rokeach's (1966) definition.

The attitude theory that is central to the study attempts to explain the factorial structure and content of social attitudes. Educational attitudes are assumed to be a subset of the universe of social attitudes. This theory has its roots in the work of Newcomb (1950), Krech & Crutchfield (1948), Katz & Stotland (1959), Rokeach (1966), and others, in "categorial" theory (Bruner, Goodnow, & Austin, 1956), and in the senior author's attitude research (Kerlinger, 1956, 1958, 1961; Kerlinger & Kaya, 1959a). Because of its complexity and because it has been expounded at length elsewhere (Kerlinger, 1967a), only an outline of it will be presented here.

Social attitudes--and educational attitudes--are conceived to be basically dualistic. Dualistic means twofold, double, two-sided. In set language, the non-intersecting sets A and B, both subsets of U, some universal set, epitomize the meaning of dualistic as used here. In contrast, attitudes have usually been conceived to be bipolar. Bipolar means two ends of a single continuum, one positive and the other negative. Bipolarity can be expressed by A and -A (minus-A). When one talks about progressive and traditional ideas in education, one is talking in a dualistic manner. When one talks about progressive and anti-progressive ideas in education, one is talking in a bipolar manner.

The theory's fundamental contention is that social and educational attitudes are not bipolar, as they have usually been conceived to be, but rather dualistic. This means that, among large numbers of individuals, the basic minimum of any large attitude-belief system, structurally speaking, is two dimensions or factors. Moreover, these two dimensions will be relatively orthogonal to each other. "Relatively orthogonal" here means slightly negatively correlated (from -.10 to about -.30). With educational attitudes, this means that there are progressives and traditionalists and these two dimensions are not two aspects of one dimension, one linear continuum; they are, rather, attitude-belief systems in their own right. Progressive is not the opposite of traditional, nor is traditional the opposite of progressive. In short, the progressive is not necessarily an anti-traditionalist, nor is the traditionalist necessarily an anti-progressive.

A most important part of the theory is the expression "criterial referents of attitudes." A referent, according to Brown (1958, pp. 7-10), is a category, a name. It applies to all classes of phenomena: physical objects, events, behaviors, even constructs. Any sort of recurrence can become the referent of a name. We extend this idea to attitudes: any recurrence, but particularly those of a social nature, can be the referent of an attitude. A referent, then, is any object or construct of psychological regard; it is a set of things toward which an attitude may be directed. Examples of attitude referents are: subject matter, private property, curriculum, child needs, discipline, teaching, civil rights, the Negro, Russia, divorce, religion, science.

The term "criterial" connotes a standard, a means of judging relevance. If a referent is criterial for an individual, it acts as a standard for him. It is, in short, relevant and significant for him. A criterial referent of an attitude is a construct that is the focus of an attitude, that is significant and relevant for the individual. Referents of attitudes are criterial in different ways for different individuals. What is a standard, or relevant, for one individual is not necessarily a standard, or relevant, for another. In fact, individuals are indifferent to (and do not necessarily oppose) many referents.

More to the point of this study and educational attitudes, the universe of educational attitude referents seems to break down into two subsets that are expressed by the terms "progressivism" and "traditionalism" (Kerlinger, 1956, 1958, 1961; Kerlinger & Kaya, 1959a). For the traditionalist, for example, discipline, subject matter, moral standards, and certain other referents are criterial; his educational attitudes cluster around them. Such referents as child needs, individual differences, and social learning, criterial to the progressive, are not usually criterial to the traditionalist. In the present research, no attempt was made to test the criterial referent part of the theory. The work was limited to the study of responses to attitude items as wholes. It was assumed that the referents were the major source of response variance.

The reason for the expected attitude duality, that is, the existence of two large classes rather than three, four, or more, is not easy to explain. It is probably due to the culture in which people learn their attitudes and to the general economy of cognitive processes (see Bruner, Goodnow, & Austin, 1956, Ch. 1).

The societies in which individuals learn their social and educational attitudes provide them with the ideologies, or "choices," that are available in the society. In certain advanced Western countries, there seem to be two such "choices" that correspond to liberalism and conservatism in general social attitudes and progressivism and traditionalism in educational attitudes. In the framework of the theory, the two "choices" are supersets of referents, for example, discipline and subject matter are traditional referents and child needs and social learning are progressive referents (see Hofman, 1964).

These supersets of referents are complex, and attitudes reduce the complexity. No one can "know" very well even a small part of his world. Therefore there is a press toward simplified categorization (see DeSoto, 1961). Since the simplest form of categorization is dichotomization, there is a press toward dichotomizing the referents of the world into those that are criterial and those that are not criterial. Presumably parents, teachers, and peers convey the criteriality of referents to children. Because the child in a conservative home is likely to be liberally exposed to conservative referents--private property, neighborhood schools, loyalty, patriotism, tradition, and the like--he will tend to dichotomize the universe of referents by learning and valuing those referents that are criterial to his parents and not learning and valuing other non-conservative referents (except, in some cases, negatively). In addition, the criteriality of referents should be reinforced by selective association since people with similar beliefs tend to associate with each other and not with people of dissimilar beliefs (Newcomb, 1961, 1963; Rokeach, 1960; Rokeach & Mezei, 1965).

There are a number of interesting empirical implications of the theory. Those most pertinent to the set of studies of this report can be expressed as follows. Social attitudes, of which educational attitudes are assumed to be a part (Smith, 1963), are dualistic: two general factors will account for most of the factor variance of educational attitude items. These "large" factors will correspond to what has been called progressivism and traditionalism. They may emerge in first-order factor analysis, but they are more likely to emerge in second-order factor analysis as second-order factors. These two second-order factors will be relatively orthogonal to each other, the correlation between the factors falling between -.10 to about -.30. Bipolarity will in general not appear, or it will appear only under certain conditions.

One would think that an important subject like attitudes toward education would have stimulated a great deal of research. Surprisingly, there has been little empirical investigation of such attitudes. Most of the work has been done by the senior author and his students (Kerlinger, 1956, 1958, 1961; Kerlinger & Kaya, 1959a, 1959b; Hofman, 1964; Smith, 1963). The main but not exclusive purpose of this work has been psychometric: to construct reliable and valid measures of general attitudes toward education. The results of the research indicate that two basic factors of educational attitudes exist, these factors are relatively orthogonal to each other, and the factors emerge repeatedly with both Q and R methodological approaches and with different samples. The factors correspond closely to progressive and traditional views on educational problems and issues. Until the present research, however, second-order factor analysis was not used. Consequently the theoretical expectations discussed above have not been adequately tested.

Perhaps the first attempt to measure attitudes toward education was made by Peterson (1933), who constructed a 79-item scale based on a priori categories and on philosophies of education. Peterson assumed, however, like most other investigators, that educational attitudes are unidimensional. He made no attempt to determine the factors behind his items, even though they were classified into seven categories. Peterson also assumed that the scale measured progressivism versus traditionalism, that is, he assumed bipolarity.

The best-known measure of attitudes toward education (though not so named) is the Minnesota Teacher Attitude Inventory (Cook, Leeds, & Callis, 1951). Unfortunately, the very large amount of research using the MTAI is probably useless because, again, we have a scale that contains items that probably measure both progressivism and traditionalism and a scoring procedure that assumes one dimension. If one assumes that the only really satisfactory way to determine the factors behind any scale is to factor analyze the intercorrelations of the responses to all the items, then there seems to have been no adequate determination of the factors of the MTAI. The nearest approach to an adequate study was that of Horn & Morrison (1965) who used "parcel" factor analysis, a method that factors small subsets of items as subscales. This study clearly showed that the MTAI had more than one factor.

Stern, et al. (1960) constructed two scales to measure unconscious motivation for teaching. One of these, Form A, the attitude form, seems clearly to measure attitudes toward education. Ten "roles" were built into the items, and the scale accordingly yields 10 scores. The analysis used to substantiate the validity of these "roles" was again not adequate.

Rinn (1965) administered the Stern attitude scale to 350 counselors. In his article Rinn reports the 10 by 10 correlation matrix obtained by intercorrelating the subscales. We factor analyzed this R matrix, using the principal axes method and Varimax rotations, and found that two orthogonal factors accounted for most of the variance. More important, perhaps, the two factors seemed to be the progressivism and traditionalism of our own studies. There was little sign of bipolarity in the data.

Oliver & Butcher (1962), in their important and excellent study of educational attitudes in England, report four factors and name three of them: "Tendermindedness," "Radicalism," and "Naturalism." There was little evidence of bipolarity in the rotated factor matrix. (Two of the reported four factors had predominantly negative loadings, but the signs of these factors should have all been reversed.) Oliver and Butcher unfortunately do not report the items loaded on the different factors. It is therefore not possible to assess their interpretations.

In their review of the literature, Oliver and Butcher criticized Kerlinger and Kaya's study of educational attitudes because the items were, as they said, "phrased in one direction only," so that there were no "anti" items in the scale. The criterial referents theory, outlined earlier, does not in general permit synthetic items. Nevertheless, future research will determine the validity of the theory and, specifically, of "anti" items.

Two smaller studies of educational attitudes have been reported (Curran, Gordon, & Doyle, 1966; Gowin, Newsome, & Chandler, 1961). Neither of these studies is satisfactory, however, because of methodological inadequacies and assumptions about the universe of attitude items. Gowin, Newsome and Chandler made no attempt to determine the factors behind their items, and Curran, Gordon, and Doyle assumed a continuum of a mixture of progressive and traditional items. (The latter authors used six of our items, four traditionalism and two progressivism, but scored them as though they all measured one dimension.)

In sum, there have been few systematic investigations of attitudes toward education, and most of these investigations suffer from inadequate analysis, especially from lack of ascertaining the factors and content of educational attitudes, and questionable assumptions about the dimensionality of the attitude domain. Part of the present set of studies attempts to remedy this situation to some extent by allowing different sources of variance of attitude items to emerge.

Central Directive-State Theory and Other Pertinent Theory and Research

The basic propositions of central directive-state theory in relation to this research were stated earlier. The evidence to support the basic propositions of the theory has been ably summarized and evaluated by Allport (1955, Chs. 13, 14, 15) who comes to the conslusion that ". . . the hypothesis that needs, values, and other motivational factors operate directly as determinants of perception . . . has not yet been definitely confirmed by the experiments." (_Ibid_., p. 342.) He points out, however, that the failure of the experiments to provide clear-cut confirmation of the hypotheses does not detract from the importance of the theory. Later, in discussing Postman's (1951) and Bruner's (1951) reformulation of directive-state theory, so-called hypothesis theory, Allport says that the theory seems to be well-supported by the experimental evidence.

The most important studies on directive-state theory are those of Bruner, Postman, and their associates. In one such pioneer study (Postman, Bruner, & McGinnies, 1948), it was found that the speed and ease of word recognition were a function of the values these words represented to the perceiver. The more a value dominated an individual, the more rapidly he recognized words associated with the value. In another pioneer study (Bruner & Goodman, 1947), it was demonstrated that the greater the need for socially valuable objects (money, coins), the greater the influence of behavioral determinants of perception. Poor children overestimated the size of coins more than wealthy children. Vanderplas & Blake (1949), in a follow-up study of the Postman, Bruner, and McGinnies research, used auditory instead of visual perception of value-related words. The results corroborated the findings of the earlier study. To help settle the controversy on whether values or simple word frequency determined selective sensitization, Brown & Adams (1954) controlled the word frequency variable and found that values were operative over and above word frequency.

There have been a number of studies in learning that are relevant, even though they do not ordinarily fall under the directive-state rubric. Levine & Murphy (1943), in one of the best-known of these studies, fruitfully combined learning and social psychological approaches by asking whether learning of controversial materials is affected by the social attitudes of the learner. They found that learning of materials on Communism was affected by their subjects' positions on Communism. A decade later, Alper & Korchin (1952) found that material that conforms to a learner's attitudes is remembered better than material with which he is in conflict. Havron & Cofer (1957) found that it was easier for subjects to learn attitude-relevant verbal responses if the response words were congruent with their existing attitudes.

An old controversy that seems to have been settled recently hinged on whether the judgments of attitude items (in scaling procedures) were affected by the judges' attitudes. Thurstone (Thurstone & Chave, 1929, p. 30) assumed that judges' own attitudes did not affect their placement of attitude items in the equal-appearing interval scaling procedure. Hinckley's (1932, 1963) evidence in two studies thirty years apart supported Thurstone's assumption. On the other hand, Zavalloni & Cook (1965), in what may be a definitive study, found that judges' attitudes did affect item placement. Sherif & Hovland (1961) assembled impressive evidence that attitudes do affect judgments. Perhaps more important, they elaborate the theoretical reasons why this must be so. We return to their arguments shortly.

The evidence, then, seems to support the proposition that attitudes and values affect perceptions and judgments. As Krech & Crutchfield (1948) said, "There are no impartial 'facts.' . . . Data are perceived and interpreted in terms of the individual perceiver's own needs, own emotions, own personality, own previously formed cognitive patterns." (p. 94.) Jenkin (1957), in a review of the evidence, concludes that affects do influence perception, but he points out that the issues are not settled by any means. Henle (1955), in a more general article that probes how needs and attitudes influence cognitive processes, suggests that needs and attitudes act

> . . . by pointing or sensitizing, organizing and reorganizing, selecting, supplying context, arousing relevant memory traces, discouraging the desire to understand, obscuring differences, disturbing the recognition process, altering the physiognomic properties of experience, and animating or enlivening aspects of experience. (p. 431.)

We turn now, if only briefly, to other psychological theory and research to supplement the directive-state theoretical formulation of our research. Sherif's and Asch's theoretical work and research on the influence of groups on social norms (Asch, 1956; Sherif & Sherif, 1956) are important. They found that groups influence perceptions and judgments, in the Asch research even to the point of making judgments contrary to immediate evidence of the senses.

The Sherif theoretical formulation (Sherif & Sherif, 1956, pp. 80-85) supplies an important condition under which central states influence cognitive processes. Two psychological principles enunciated by Sherif & Sherif (1956, pp. 81-83) are: (1) "In unstructured stimulus situations, alternatives in psychological structuring are increased" (p. 81), and (2) "The more unstructured the stimulus situation, the greater the relative contribution of internal factors in the frame of reference" (p. 82). These propositions supply part of the rationale for the earlier argument that attitudes toward education influence perceptions and judgments of desirable characteristics of teachers. To repeat the argument to some extent, it would seem that one of the important and requisite conditions when attitudes affect perceptions and judgments is in ambiguous situations with ambiguous stimuli. (See, also, Sherif & Hovland, 1961, pp. 112, 180, 184ff.) The teacher is certainly a complex and ambiguous stimulus. And teaching situations are also complex and ambiguous. Therefore, the conditions for eliciting perceptions and judgments that are attitude-influenced seem to be satisfied.

While the theory discussed above is the main theory of this study, there are other theoretical formulations and empirical research that are pertinent and that should be mentioned. Social psychological work using norm and role theory, for example, is pertinent. Newcomb (1950, Chs. 8 and 14) points out that group norms are shared by group members and that they influence perceptions and judgments. He also points out the intimate relation between norms and roles and their mutual influence on perception. Presumably group-defined and prescribed norms and role prescriptions are interiorized by individuals and act as determinants of perception and judgment. An empirical demonstration of the influence of conflicting group norms by Charters & Newcomb (1958), for instance, showed that when group members were made aware of religious group membership they responded to attitude items in a different manner than when not immediately aware of such group membership.

Whorf (1958) has proposed a cultural relativistic thesis which says that peoples of different cultures perceive things differently. Again, we can assume that perceptual and judgmental styles are in part determined by group membership. Language, conceptual development, and thinking are strongly influenced by cultural group membership. Carroll & Casagrande (1958), for example, in a study done to test the hypothesis that different modes of thinking develop from different languages (expressions of group membership) indicated that linguistic patterning (group norms?) influences cognitive functioning. Once again we assume that group norms become part of the central directive state of the individual.

Probably the most important study of the relations between personality factors and attitudes is the large-scale study of ethnocentrism and authoritarianism by Adorno, et al. (1950). Although the authors do not discuss perception and judgment as such, they do discuss and report many empirical relations between the underlying needs of the individual and ideology, the latter taken to include beliefs, attitudes, and values. Since, by definition, perceptions of cognitive objects are parts of attitudes, Adorno, et al. were of course studying, if not directly, the relation between internal directive states and perceptions. We get a picture of the ethnocentric person as prone to stereotypy (rigid perceptions), rigidity, power-orientation, general destructiveness, and anti-intraception, among other things. While this research has been criticized on methodological grounds (see Christie & Jahoda, 1954), there is little doubt that it focused sharp attention on important relations between inner needs and attitudes.

In sum, there is considerable evidence on the validity of the relation between central states and beliefs, behavior, perceptions, and judgments. While some psychologists believe the evidence is good, the conclusions of most would probably be that the evidence is not clear-cut and unequivocal. This was expressed by the most thorough student of the subject, Allport, in the quotation given earlier. Nevertheless, we take central directive-state theory as the main part of the theoretical base of our research.

From the above review and sampling of pertinent research and theory, it is clear that our study is closest in its orientation to directive-state theory and research. Since, in a sense, it is not concerned with actual teacher effectiveness, most of the large body of teacher effectiveness research is not pertinent. While it would not be true to say that there has been no research on perceptions and judgments of teacher effectiveness, it is probably true to say the approach of asking judges to name characteristics of effective teachers (e.g., Charters & Waples, 1929) is not perceptual-judgmental research since it is not rooted in cognitive theory. It is, in effect, an opinion-criterion approach. The present research has been relatively unconcerned with the criterion problem, though not unconcerned with judges' opinions. More important, it has been primarily concerned with different kinds (factors) of perceptions and judgments and has used cognitive theory (e.g., Bruner, Goodnow, & Austin, 1956, Ch. 1) as a basic guide to the empirical study and analysis of perceptions and attitudes.

Problems and Hypotheses

Three general problems dominated the research. The first is: What are the relations between attitudes toward education and perceptions of desirable traits of teachers? Are the perceptions of desirable traits--traits thought to be possessed by effective teachers--affected by the attitudes of the perceivers? If so, how are perceptions affected by attitudes? To what extent are they so affected? Do judges with "progressive" attitudes choose sets of traits separate and distinct from the sets chosen by judges with "traditional" attitudes? Are the traits chosen congruent with the attitudes of the chooser? Is there, for instance, a "progressive" set of traits and a "traditional" set of traits?

Sub-problems that spring from or are related to this general problem are:

(1) In making judgments of teachers and the traits believed to be possessed by effective teachers, does a significant portion of the judgment variance come from differences between types of judges? What traits do judges of Type A, for instance, choose as characteristic of the effective teacher? and so on for judges of other types. In other words, do persons

factors or clusters arise from the relations among judges' judgments? What are these persons factors or types?

(2) What are the trait factors behind judgments of effective teachers? Do trait names and adjectives cluster to form relatively separate and distinct psychological entities? This sub-problem is a companion of (1), above. In (1), however, the emphasis is on types of judges; here it is on types of traits. This is the usual R methodological, or tests, approach. Sub-problem (1) is the Q, or persons, approach.

(3) What is the relation between attitudes toward education, educational level, and perceptions and judgments of the traits of the effective teacher? Do judges make different judgments depending on what educational level is considered? That is, are judges' judgments affected differentially depending on whether they are judging effective elementary teachers, secondary teachers, or college teachers? Do judges from different educational levels have different perceptions of desirable teacher traits? Or are effective teacher judgments invariant over levels? How do educational attitudes affect judgments at different levels? Does the "progressive" judge perceive traits as desirable differently at different levels? the "traditional" judge?

The second general problem is: What is the relation between attitudes toward education and perceptions and judgments of desirable teacher behaviors? The sub-problems of this general problem, except that perceived teacher behaviors rather than perceived teacher traits is the dependent variable, are the same as above. They will therefore not be repeated

The third general problem asks the attitude duality question implied by our earlier discussion of the criterial referents attitude theory. It is: What are the factors behind attitudes toward education? Do two "large" factors appropriate most of the common factor variance, and do these factors correspond to notions of "progressivism" and "traditionalism"? What is the content of the sub-factors of educational attitudes, and how do they combine to form the larger basic factors?

Seven hypotheses were tested in this research. They are:

(1) There are two or more persons factors behind perceptions of the effective teacher. Two factors will appropriate most of the common factor variance among persons' judgments. These factors will correspond to "progressive" and "traditional" notions of education and teaching.

(2) There are two or more traits factors behind perceptions

of the effective teacher. Two factors will appropriate most of the common factor variance. These factors will correspond to "progressive" and "traditional" notions of education and teaching. They will be closely similar to the factors yielded by the persons factor analysis.

(3) Judges with "progressive" attitudes toward education will choose traits congruent with "progressive" educational opinions and beliefs. Judges with "traditional" attitudes toward education will choose traits congruent with "traditional" educational opinions and beliefs.

(4) Two basic factors, whose content corresponds to progressive and traditional notions of education, underlie attitudes toward education. These factors will be relatively orthogonal to each other.

(5) - (7) These hypotheses are the same as (1), (2), and (3), above: substitute "behaviors" for "traits."[2]

Earlier we outlined the basic theory behind the study. But the discussion was a general one. Additional specific explanation is necessary. (We avoid repeating earlier explanations, however.) Why do we write our hypotheses as we have? Why, specifically, do we predict that there will be two or more factors behind perceptions of the effective teacher? Why do we say that two factors will appropriate most of the common factor variance and, more important, that they will correspond to progressive and traditional notions of education and teaching? Similarly, why do we say that progressive judges will choose traits congruent with progressive educational opinions, and conversely for traditional judges? (The hypothesis predicting two factors behind educational attitudes was discussed in detail earlier. We omit its discussion here.)

The reason for saying there are two or more factors behind trait perceptions is simple: there are usually two or more factors behind most complex sets of perceptions, judgments, attitudes, values, motivations, and so on. A large storehouse of factor analytic research (French, 1951) makes the multifactor hypotheses quite reasonable.

It is more difficult to explain the predicted congruence between attitude and perception factors. It is of course not difficult to appeal to a sort of mystical congruence in cognitive processes, and then, when a relation turns up, to explain it in a more or less ad hoc fashion. Our explanation may seem a little like this, but we believe it is more than an ad hoc explanation. We make no claim, however, that it is a theory in the scientific sense of the word.

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[2] It should be noted that the behaviors hypotheses were tested much less thoroughly than the traits hypotheses. In fact, the behaviors aspect of the research was limited to the work of one sub-study, a doctoral thesis. This study will be described later.

The image of the progressive teacher is one of a pupil-oriented individual with a basic concern for pupil growth, the differences between individuals, pupil interest and motivation, pupil activities and actual experiences, and a changing curriculum (see Dupuis, 1966). An adjectival description of such a teacher is not hard to conceive. Even with this brief description we detect three themes that give us clues to the traits such a teacher should possess: pupil-centeredness, pupil growth, and educational change. Clearly, teachers who are kind, sympathetic, flexible, open-minded, friendly, and sensitive are associated with these themes.

On the other hand, the image of the traditional teacher is one marked by concern for subject matter, discipline, truth, intellect, mastery, control, and changeless principle. It would seem that traits like moral, thorough, efficient, religious, conscientious, firm, and learned are fitting for such a teacher. These would spring from the themes that seem to be behind traditionalism in education: teacher-centeredness, subject matter, and moral concern. Thoroughness, for example, would seem to be necessary if subject matter is to be mastered; conscientiousness springs from the moral emphasis of educational traditionalism; efficiency is derived from the traditionalist's view of the school as a businesslike place where young people are prepared for the serious business of adult life; firmness, of course, has to follow from traditional emphasis on authority and discipline.

Human perceptions of roles are of course very complex. Despite the old stereotypes and the many oversimplified attempts to describe desirable teacher traits and behaviors, the teacher role is complex and multidimensional. So are educational attitudes. Therefore any one-to-one congruence between attitudes and teacher trait and behavior perceptions is not to be expected. Even if we were successful in identifying the underlying dimensions of educational attitudes and trait and behavior perceptions, we expected only modest congruences between attitudinal and perceptual dimensions. We did expect, however, that they would be identifiable, consistent, reliable, and relatively invariant over different samples. Whether we were successful of course has to be judged from the empirical evidence and the adequacy of our investigations. We now turn to both.

Chapter III

Methodology: An Overview

In this chapter we try to give the reader an overview of our methodology. For the most part, the basic method was simple: a variety of scales constructed to measure attitudes toward education and perceptions of desirable teacher characteristics were administered to samples in different parts of the country and the responses to the scales analyzed mostly with correlation techniques.

The Samples

Only teachers and graduate students of education were used as subjects. Previous research (Kerlinger, 1961) had shown that the factor structures of educational attitudes yielded by graduate students of education were in general about the same as those yielded by more heterogeneous samples. In addition, the use of non-educators to judge teacher characteristics had been found to be unsatisfactory (Kerlinger, 1966). The study problems, moreover, were concerned mainly with the perceptions and judgments of educators. In short, it was found that graduate students of education were good subjects because of their obvious motivation and interest and the stable and sizable variances their responses yielded. We made a considerable effort, however, to obtain teachers on the job. (Many of our graduate student subjects, of course, were teachers on the job.) The subjects of our study, then were some 3000 elementary and secondary teachers and graduate students of education from New York, North Carolina, Texas, Indiana, Wisconsin, and Michigan.

None of the samples were random samples. The cost and difficulty of obtaining large random samples are more than the external validity virtues of such samples are probably worth. We obtained samples from widely dispersed areas, however. A prime principle that guided us is expressed by the word replication. For the most part, we replicated everything we did, usually in different localities, under the assumption that two samples are better than one, and three are better than two. As anticipated, this caused us trouble--but gave us considerable assurance as to the replicability of our findings.

Relations, Control, and Statistics

The study was basically ex post facto in nature (Kerlinger, 1964, Ch. 20). Although we wanted to use experimental manipulation to strengthen our case, it was possible to do so only once. First and most important, the independent variable of the study, attitudes toward education, is not in general a manipulable variable. Therefore we could only manipulate some other variable with which educational attitudes might interact to produce a joint effect on the dependent variable, perceptions of desirable traits of teachers. We are quite conscious of the limitations of ex post facto research and the possibility that the relations reported are not the relations we say they are. Some consolation is afforded by two thoughts: one, that much valuable research would have to be abandoned if we were to insist, as some do, that all research be experimental, and two, that in all science one can never be sure that the relations we say we have found are really the relations we think they are.

In ex post facto studies it is especially necessary to test hypotheses alternative to those under basic study. We have attempted to do so but have to confess that we may not have been too successful. One difficulty, of course, is conceiving good alternative hypotheses, especially when little is known about the possible correlates of both educational attitudes and perceptions of teacher characteristics. By "good" alternative hypotheses we mean hypotheses, other than the study hypotheses under test, that seem to supply, on some theoretical ground, plausible explanations of observed phenomena. Another difficulty is the large number of samples that must be obtained to make such tests.

Despite the major difficulty of finding good alternative hypotheses, we selected variables that seemed, on the basis of published research and our hunches, to have some connection with either educational attitudes, teacher trait perceptions, or both. For example, one plausible hypothesis that might account for the results we obtained is response set. A positive correlation between two of our measures might be due, perhaps, simply to the differential tendencies of our subjects to agree with the items of both kinds of measures. To test this alternative hypothesis, we administered, along with two of our main measures, measures of agreement response, social acquiescence, and social desirability to one of our samples.

To study correlates of attitudes and perceptions, as well as to test possible alternative hypotheses, we used, or adapted for use, a number of scales constructed by other investigators or by ourselves. These measures included the Minnesota Teacher

Attitude Inventory, Pettigrew's Category Width Scale, two of Thurstone's perceptual measures (Social Judgment), an embedded figures test, an intelligence test, the D Scale, the F Scale, and a social attitudes scale. Finally, we obtained, for some of our samples of teachers, data on sex, number of years teaching experience, and educational level taught (elementary or secondary). All our own and others' measures will be described later.

Although we used a variety of statistical methods, we leaned most heavily on correlation and correlation-related methods. These included zero-order correlations, partial correlations, and first- and second-order factor analysis. In Phase I, the Q methodology phase, of course, zero-order correlations and factor analysis were used. In Phase II, we used zero-order correlations and exact probability tests and $\underline{X}^2$ to study the attitude-perception hypothesis. It may be noted that we had to devise the exact probability tests and the $\underline{X}^2$ procedure because of the special nature of one of our perception instruments. In subsequent phases, the same kinds of statistics were used, but factor analysis was added in order to test our structural hypotheses and to test the basic attitude-perception relation in what we considered to be a crucial manner.

The Measurement Instruments

A large part of the study was psychometric in nature. Although a good bit was known about the measurement of attitudes toward education from earlier research, little was known about measuring perceptions and judgments of teacher traits. For example, no one seems to have systematically assembled a large population of trait names for actual use (but see Charters and Waples, 1929). Furthermore, we were dissatisfied with earlier measurement of educational attitudes. The numbers of items used in earlier research instruments were too few to study adequately the factor structure of such attitudes, and the scales used were not reliable enough (in the .70's), no doubt due to too few items.

Four instruments were used to measure attitudes toward education and nine to measure perceived teacher traits. One of the attitudes instruments, ES-I (Education Scale I), was not satisfactory, even though it accomplished its purpose in Phase I of the study. Three of the trait perceptions instruments did not work very well; the rest were all "successful." In sum, the measurement instruments were in general quite satisfactory: their reliabilities were substantial, and the evidence indicates that they had factorial validity, especially those constructed to measure educational attitudes.

Factor Analysis

Very heavy emphasis has been put on factor analysis in this study, not only to help answer the structural questions asked but also to answer the basic question about the relations between attitudes and perceptions. Such dual use of factor analysis requires explanation.

Factor analysis has usually been conceived as an exploratory method to investigate the underlying structure and content of tests (Thurstone, 1947, pp. 56, 320). Only rarely has its potentiality for testing hypotheses been recognized (Cattell, 1952, Ch. 20; Kerlinger, 1964, pp. 680-683). There is no valid reason whatever for excluding hypothesis testing from factor analytic use. Indeed, it can be a powerful hypothesis-testing tool, despite its limitations and weaknesses.

There are two principal ways that hypotheses can be tested with factor analysis. One is by predicting a certain factor structure and then using factor analysis on data to see if the structure behind the data is in fact the predicted structure. We used this approach to test our structural hypotheses: the attitude duality hypothesis and the multi-factor perception hypothesis.

The second way is to test relations between independent and dependent variables, as in most research. In this study, for example, we will see that a potent test of the predicted relations between attitudes and perceptions can be made by using what we will call a "double" factor analysis. This merely involves intercorrelating all the items of both an attitude scale and a perception scale and then factor analyzing the resulting correlation matrix. This method turns out to have virtues that the more usual correlation and factor analytic methods do not have.

Second-order factor analysis is a method of determining the factors behind factors. (See Thurstone, 1947, Ch. XVIII.) For example, a first-order factor analytic investigation may have yielded, say, eight factors underlying 25 tests. It is possible to obtain the correlations among the eight factors and then factor analyze these correlations. The factors so obtained--suppose there are two of them in this case--are called second-order factors. The two second-order factors are presumably "basic" factors underlying the eight factors and the 25 tests. In our research we used second-order factor analysis a number of times, with very rewarding results.

Second-order factor analysis has not been used very much probably because of its computational difficulty--which of course no longer exists--and because of technical obstacles that are not easy to overcome.[1] If these obstacles can be surmounted, then a number of important research problems can be solved. In our research, there were three such problems. Two of them involved the underlying structures of educational attitudes and of perceptions of desirable teacher characteristics. As it turned out, second-order factor analysis provided a most appropriate method to test the attitude duality hypothesis. The answers to our questions about duality, orthogonality, and bipolarity, discussed in Chapter II, were quite clearly answered. The underlying structure of teacher trait perceptions, too, was revealed with second-order analysis, if not as satisfactorily (see Kerlinger, in press).

The third use of second-order factor analysis was to test the basic attitude-perception hypothesis of the study. The simplest way to test a relation with correlation is to calculate a zero-order correlation coefficient between the values of two variables. If there are more than one independent variable and one dependent variable, then zero-order correlation coefficients can be calculated among all possible combinations of variables. But suppose both independent and dependent variables are complex, multidimensional. Then the zero-order correlations can mask underlying relations. By using methods like first- and second-order factor analysis of the components of the independent and dependent variables, it is possible to study the relations among the components of the variables _and_ the underlying first- and second-order structures of the whole domain.

This is what was done in this research. In what we consider to be a "crucial" test of the attitude-perception hypothesis, we factor analyzed the responses to all the items of measures of both independent and dependent variables. The first-order analysis showed us the relations among the items of both measures, as well as their factorial structure. Second-order analysis of the correlations among the first-order factors, however, tested the hypothesis by boiling down the mass of data to only two second-order factors. The resulting second-order factor matrix supplied a test of the hypothesis that ordinary correlations between the independent and dependent variables could never do.

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[1] Second-order factor analysis seems to be quite sensitive to the number of first-order factors extracted and rotated and to sample idiosyncrasies. Moreover, if the second-order factor structure is not a clear one, an adequate solution may not be possible. When, for example, all the first-order factors are positively correlated, it can be quite difficult to determine and define the second-order factors. If the investigator has hypotheses to guide him, as we did, and is willing to use very large samples, then the technical problems are not insurmountable.

Chapter IV

Study I: A Q Approach[1]

The Q study to be reported in this chapter was preceded by an exploratory Q study that, although abortive, was helpful in guiding the main study. Both studies are reported.

Q methodology (Stephenson, 1953) seemed to be a good tool to open up the study of teacher trait perceptions as well as to test the hypotheses. By selecting a relatively small number of judges whose educational attitudes are "known," one can determine what persons factors lie behind trait perceptions. This approach was successfully used in other studies of educational attitudes (Kerlinger, 1956, 1958). From the persons factors, one can also determine what Stephenson (1953, pp. 176-179) calls "factor arrays." A factor array is a Q sort constructed by selecting those judges who are "loaded" substantially on one factor only of a factor analysis of the correlations among the responses of all the judges. These judges' responses are averaged in a special way and the factor array, or factor Q sort, is constructed. The advantage of this procedure is that one can see clearly what the nature of a factor is simply by studying the high and low items of the array.

After obtaining factor arrays--as many arrays as there are factors--the investigator can ask questions about the judges who supplied the arrays. In the present case, we can ask: Do judges with progressive educational attitudes appear together on one teacher trait perception factor? How about judges with traditional educational attitudes? One can also ask: Are the factor structures yielded by the same judges who have sorted two Q sorts, one measuring educational attitudes and the other teacher trait perceptions, generally the same? These notions will be exemplified in the chapter.

In addition to supplying factor arrays, there were two other reasons for using Q in the study. One, its forced-choice nature seemed well-suited to the essentially judgmental task of the research, and two, a Q sort of established reliability and validity was available to measure attitudes toward education (Kerlinger, 1956, 1958).

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[1] Part of this study was begun before the inception of the present project and was partially supported by the School of Education, New York University. The study has been published (Kerlinger, 1966).

Exploratory Study

Many years ago, Charters and Waples (1929) asked a large number of judges to specify desirable traits and behaviors of teachers. The main outcome of this study was a list of 25 traits most frequently chosen by judges from a larger set of 83 traits. Their traits were in noun form, e.g., enthusiasm, consistency, efficiency, friendliness. The analysis of the data consisted mostly of frequency counts. No attempt was made to ascertain the dimensions or factors behind the traits.

Because it was thought desirable to base preliminary work on the Charters and Waples results, the entire set of 83 traits, plus seven more traits believed to be important in assessing teachers, were incorporated in a Q sort. This Q sort was administered to 38 judges with instructions to sort the deck on the criterion of importance of the traits for teachers to possess. The judges included professors of education, liberal arts professors, public school teachers, and laymen. Further details are not necessary since the results were used only for guidance for further research.

A factor analysis (centroid method, with graphical orthogonal rotations) yielded three factors. The factor structure, however, did not satisfy simple structure criteria very well due probably to inadequate sampling of traits and judges and to the use of nouns as items. As a consequence, certain items appeared on all the Q factor arrays.

The exploration was helpful, however, for the next phase of the research. The evidence indicated that there was more than one factor behind the judgments, that nouns and noun phrases were probably not adequate item material, and that judges had to be chosen with more attention paid to their "competence." It also seemed that certain items--"goodness" or "virtue" items like some of those given in the above paragraph--should be avoided. Moreover, the factor analytic results, poor as they were, provided a baseline for future factor analytic work.

Method

The Instruments

Education Q Sort (QED). Two Q sorts were used: QED (Q-

Education), the Q sort to measure attitudes toward education mentioned earlier, and TCQ (Teacher Characteristics Q Sort), a sort used to measure perceptions-judgments of the effective teacher. QED consists of 80 statements covering a broad range of beliefs about educational practices, and apparently taps the two broad educational attitudes factors discussed earlier. An added advantage of this sort is its factor arrays, calculated in previous research. The original analyses of QED yielded two arrays, A, "Progressivism," and B, "Traditionalism." The Q sort of any S can be correlated with these arrays for estimates of degree of A-ness or B-ness. Two representative items of this Q sort, an A and a B, respectively, are:

> We should fit the curriculum to the child and not the child to the curriculum.
>
> The curriculum consists of subject matter to be learned and skills to be acquired.

Teacher Characteristics Q Sort (TCQ). To obtain the raw materials, the adjectives or traits, to construct the Q sort to measure perceptions-judgments of desirable teacher characteristics, all traits conceivably related to the teaching function were selected from the Allport-Odbert (1936) list of some 18,000 traits. In addition, Barr's (1950) list of traits was also included in the pool of trait-adjectives. The nouns of the Charters and Waples list that had emerged as high on the factor arrays were changed to adjectives (when possible) and added to the pool. Several adjectives thought to be pertinent but not on either list were also added. Some of these latter traits were obtained from five experienced teachers in informal open-ended interviews. The resulting list consisted of some 350 to 400 traits.

To construct a Q sort of 80 to 100 adjectives, the following criteria of selection and rejection were used: apparent validity, as indicated by the factor analysis of the noun Q sort; applicability to the teaching situation at all levels, but with particular emphasis on elementary and secondary levels; relative lack of ambiguity, i.e., high probability of the same interpretation by all judges; positive quality, i.e., all adjectives with negative evaluative meaning excluded (e.g., sloppy, careless); adequate sampling of the trait domain; descriptive of personal characteristics and not of effect on others; common and readily understandable words, i.e., rare and esoteric words excluded; non-repetitive in meaning (e.g., purposive and purposeful); "implicative" adjectives--adjectives that directly imply a good teacher, like effective or constructive--excluded; behavioral-operational, i.e., adjectives as closely related to behavior as possible. The 90 items selected and put into TCQ are given in the Appendix. A number of the adjectives are also given in Table IV-2.

Judges

The criteria for the selection of judges were: "known" attitudes toward education (when "known"); educator status, i.e., all judges had to be teachers or actively concerned with education as a profession; spread of educational level and type--elementary, secondary, university, public, parochial, military. It was thought that these criteria would ensure a spread of attitudes and judgments over the educational cognitive domain, that they would cut down the random error encountered with the nouns Q sort (introduced in part by including non-educators as judges), and that the factors behind educational attitudes and teacher-trait judgments would have a greater probability of emerging. Thirty-six judges participated. They included twelve professors of education, seven elementary teachers, ten secondary teachers (three junior high and seven senior high), four nun parochial school teachers and three military (Army) officer-teachers.

Administration of Q Sorts

The QED and TCQ sorts were administered individually to the 36 judges. Except for the professors, each judge was paid a nominal sum for his work. TCQ was administered twice to 22 of the judges to test reliability. The range of r_{12}'s was .45 to .89, with 15 r_{12}'s greater than .70. The average r_{12}, via Fisher's z, was .73. As indicated earlier, the reliability of QED had been found to be satisfactory in previous studies.

The instructions to the judges, with QED, were those used previously (Kerlinger, 1956). In essence, they told the judges to sort the 80 cards into a quasi-normal distribution according to relative degrees of approval and disapproval. The TCQ instructions told the judges to sort the 90 adjectives into the following distribution:

Most Important										Least Important
3	4	7	10	13	16	13	10	7	4	3
10	9	8	7	6	5	4	3	2	1	0

(The figures above the line indicate the number of cards in each pile, those below the line the values given to the cards in the piles for analytic purposes.) The judges were told to decide how important it was for teachers in general to have each of the traits and to place the cards in the piles accordingly. All judges succeeded in accomplishing the task. Despite its difficulty only two judges complained. Judging from the evidence, the sorts of these two judges did not suffer.

Analysis and Statistical Results

The QED sorts were intercorrelated (product-moment $\underline{r}$'s) and factor analyzed with the principal factors method and Varimax rotations (Harman, 1960, Ch. 9 and pp. 301-308; Kaiser, 1958). Communality estimates were the highest $\underline{r}$'s in the columns of the $\underline{R}$ matrix. ($\underline{R}^2$, or so-called Guttman, estimates were also calculated, but they were too high due probably to the nature of the $\underline{Q}$ data.) Two, three, and four factors were rotated successively and independently. While the fourth factor of the unrotated factor matrix had three loadings that could be considered significant, the Kiel-Wrigley criterion indicated that the correct solution was three factors. The K-W criterion accepts ". . . that rotated solution which defines the largest number of common factors, where a common factor is defined to be one on which at least three variables have their highest loadings."[2] Three factors are therefore reported in Table IV-1.

The adequacy of the rotations is attested to by calculating coefficients of parsimony for each matrix. Such coefficients are indices of simple structure and can be calculated with the formula:[3]

$$\underline{Co} = \frac{\sum \underline{a}_{\underline{ij}}^{4}}{\sum \underline{h}_{\underline{i}}^{4}} \qquad (1)$$

---

[2] Letter to senior author from Professor Charles Wrigley, Dec. 30, 1963. Experience with the K-W criterion seems to indicate that, if anything, it includes too many factors. In this case, therefore, the three-factor decision was conservative.

[3] This formula was derived from Ferguson's coefficient of parsimony, which is the numerator of the above formula. Ferguson's

where $\sum \underline{a}_{ij}^4$ = the sum of all the factor loadings of the factor matrix, each raised to the fourth power, and $\sum \underline{h}_i^4$ = the sum of the squared communalities ($\sum (\underline{h}_i^2)^2$). Co was .83 for QED and .68 for TCQ. The parsimony of the QED structure, then, was high, and that of TCQ substantial.

TCQ was analyzed in the same way. It, too, yielded three factors. They are also reported in Table IV-1. The reliability coefficients of the 22 judges who took the sort twice are included in the table (under the heading $\underline{r}_{12}$). Factor arrays were calculated by weighted averages (Stephenson, 1953, pp. 174-179) of the factor loadings of those judges whose loadings were .40 or greater, these loadings appearing on one factor only. For Factor A, these judges were Numbers 1, 2, 3, 7, 8, 9, 13, 14, 15, 19, 20, and 27. For Factor B, they were Numbers 12, 23, 33, 34, 35, and 36. For Factor C, they were Numbers 18, 21, 26, 28, 30, and 32. The adjective arrays are reported in Table IV-2.

Four educational psychologists thoroughly conversant with studies of teacher effectiveness were asked to characterize and name the TCQ factors. Their characterizations will be given later.[4]

To test the hypothesis that perceptions-judgments of teachers is in part a function of attitudes toward education, we must compare the QED and TCQ factor matrices. Although the validity of the hypothesis cannot be said to be established even if the two matrices were completely congruent, a high degree of congruence is strong presumptive evidence favoring the hypothesis. We are testing the hypothesis, then, by predicting

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formula, unfortunately, varies with different numbers of variables and factors. The above formula, by comparing, in effect, the sum of the fourth powers of the $\underline{a}_{ij}$ to the sum of the squares of the communalities, indices of common factor variance, makes Co relatively comparable from case to case, provided the number of variables is greater than about 20. $\sum \underline{a}_{ij}^4$ is of course the Quartimax criterion. Note that Harman (1960, p. 296) quotes a Saunders' formula that is essentially the same as (1), but that was developed from different theoretical reasoning.

[4] The author is indebted to Professors N. Gage, P. Jackson, H. Mitzel, and D. Ryans for acting as judges.

Table IV-1

Rotated Factors of Educational Attitudes and Teacher Trait Perception Q Sorts[a]

	QED				TCQ				
Judges	A	B	C	h^2	A	B	C	h^2	r_{12}
1	81	-09	13	69	77	02	19	63	63
2	80	-24	24	75	80	01	18	67	78
3	75	-15	18	62	61	14	34	51	89
4	74	15	09	58	40	42	-14	36	51
5	76	05	13	59	71	32	07	61	52
6	84	-04	-03	71	66	40	10	61	72
7	79	-04	-08	63	76	23	10	63	
8	76	15	30	68	53	35	06	41	
9	76	08	-10	60	72	14	03	54	74
10	54	00	34	41	38	49	-06	39	
11	42	06	53	46	42	52	20	48	
12	-28	60	08	45	10	63	10	41	71
13	85	11	03	73	63	23	03	45	
14	68	21	-23	55	63	21	22	49	
15	76	-01	25	63	66	14	17	49	87
16	85	09	09	73	72	-03	32	63	
17	78	03	28	69	60	-10	53	66	75
18	69	25	11	55	27	20	45	32	45
19	08	18	-05	04	59	-09	27	43	80
20	59	32	10	47	44	16	29	31	69
21	44	29	-09	28	31	36	40	39	76
22	71	16	04	54	42	33	44	48	73
23	66	19	20	51	10	60	35	49	71
24	23	59	25	46	36	47	26	42	
25	15	58	16	39	09	27	35	20	
26	70	20	12	55	36	04	60	49	
27	80	-20	03	68	69	-12	20	54	
28	13	26	52	35	21	31	56	46	77
29	68	10	04	48	01	35	17	16	
30	-20	50	40	45	-08	21	58	39	
31	20	03	62	43	44	37	54	62	
32	-03	09	65	43	16	10	70	53	64

(Table continued on next page)

Table IV-1 (cont'd)

Judges	*A*	*B*	*C*	h^2	*A*	*B*	*C*	h^2	r_{12}
33	16	72	-08	55	-04	72	06	53	70
34	-04	66	07	44	05	65	29	51	86
35	42	54	07	47	26	60	20	47	80
36	-11	68	09	49	01	73	13	54	80

[a] QED: Educational Attitudes *Q* Sort; TCQ: Teacher Characteristics Q Sort. Judges 1-12: professors of education; 13-19: elementary teachers; 20-29: secondary teachers; 30-32: army officer teachers; 33-36: religious parochial school teachers. All decimal points omitted. Significant loadings ($\geq$.35) are underlined.

Table IV-2

Factor Arrays Derived from Teacher Trait Perception _Q_ Sort[a]

Factor _A_	Factor _B_	Factor _C_
Intelligent	Conscientious	Enthusiastic
Imaginative	Moral	Inquisitive
Insightful	Religious	Decisive
Warm	Intelligent	Purposeful
Open-Minded	Efficient	Sincere
Flexible	Just	Practical
Purposeful	Self-Controlled	Respectable
Enthusiastic	Trustworthy	Resourceful
Sympathetic	Refined	Imaginative
Sensitive	Firm	Just
Fair	Learned	Confident
Patient	Industrious	Definite
Sincere	Reliable	Persevering
Resourceful	Healthy	Forceful

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[a] Factor _A_: "Progressive Teacher"; Factor _B_: "Traditional Teacher"; Factor _C_: Unnamed. Only those traits with high positive values are given above.

the loading structure of TCQ from that of QED. Visual inspection of the two matrices seems to indicate considerable congruence: those judges loaded substantially on *A* on QED are also loaded substantially on *A* on TCQ. The congruence is less for *B* and still less for *C*. Coefficients of congruence (Harman, 1960, p. 257, Formula 12.31) were calculated between all possible pairings of *A* and *B* factor vectors (columns). The matrix of these coefficients is reported in Table IV-3.

Unfortunately, there is no clear way to specify the "highness" of these coefficients. Before the data were analyzed, it was decided, on the basis of previous experience with such coefficients, to set the following criterion levels: if a coefficient is .90 or greater, congruence is high; if .80-.89, congruence is good; if .70-.79, congruence is fair; if less than .70, congruence is low. (There seem to be no tests of the statistical significance of coefficients of congruence.) Congruences, then are high for *AA* and fair for *BB* and *CC*: *AA* = .92, *BB* = .79, *CC* = .71.

In addition to the three-factor solutions, two-factor solutions were also calculated and the resulting rotated factor vectors compared with coefficients of parsimony. This analysis furnished additional, if not independent, tests of both hypotheses. By limiting the factor solutions to two factors, it became possible to compare the two factors with coefficients of congruence to furnish another test of whether the attitudes and perception persons factors are congruent with each other. The coefficients of congruence for the *A* and *B* factors thus derived were .92 and .87. This parsimony and congruence evidence, then, lends rather strong support to the hypotheses.

Results and Discussion

From the results presented in the preceding section, it seems clear that the study hypotheses are supported. First, the three factors yielded by the factor analysis of TCQ indicate that perceptions of the desirable teacher are multidimensional. Study of the rotated factor matrix and the factor arrays indicates that there are three different perceptual patterns of desirable traits of teachers. Factor *A*, which appropriates 49 per cent of the common factor variance, seems to describe the "progressive" notion of a good teacher. Three of the five judges (including the authors) agreed on this interpretation. The other two judges called the factor "tight vs. loose teacher" and "Controlled Confident Expressiveness," interpretations that do not contradict the "progressivism" interpretation. This factor seems related to Ryans' X_o teacher behavior pattern (Ryans, 1960a, pp. 96ff.).

Table IV-3

Coefficients of Congruence Between Factor Vectors of QED and TCQ

		TCQ		
		A	B	C
QED	A	.92	.49	.55
	B	.19	.79	.52
	C	.43	.47	.71

Factor *B*, on the other hand, presents a very different picture. Two judges thought it portrayed the traditional teacher; one judge said "cold-constricted"; another judge characterized it as "cognitive control"; another judge labeled it "Benign Authoritarianism." The interpretations all seem to converge on what may be called the "Traditional Teacher." It seems to be closely related to Ryans' $\underline{Y}_o$ teacher behavior pattern (*ibid*.).

Additional evidence supporting the above interpretations is supplied by study of the judges loaded on the two factors. All the professors of education highly loaded on *A* were known to be progressive in their educational opinions. Similarly, the judges loaded high on *B*--Numbers 12, 33, 34, 35, and 36--were known, or believed to be, traditional in their orientation.

The judges' interpretations of Factor *C* did not agree. For this reason, and because the factor is not directly pertinent to the study's hypotheses, it is not discussed here.

The evidence indicates, then, that the Hypotheses 1 and 3 of the study (see Chapter II) are supported. There are evidently two or more factors behind judgments of desirable traits of teachers, the first two of the three persons factors found in this study appropriated 78 per cent of the common factor variance, and these two factors corresponded rather well to "progressive" and "traditional" notions of the teacher. Furthermore, the relations between attitudes toward education and perceptions of desirable traits of teachers are substantial. Evidently some common determinant or determinants are behind this relation. While it cannot definitively be said that attitudes *are* these common determinants, it can certainly be said that the evidence makes the proposition quite reasonable.

Chapter V

The Construction of Measures of Educational Attitudes[1]

In order to clarify subsequent discussions, it is desirable to abandon a strictly chronological order of reporting and to describe in detail the construction of the instruments used to measure the independent and dependent variables of the study, attitudes toward education and perceptions of desirable traits of teachers. In this chapter we describe, primarily, one of the two main educational attitudes scales used, Education Scale VI. Most of the analytic work was done on this scale. We also describe, more briefly, Education Scale I and Education Scale VII. In Chapter VI, we will discuss the instruments used to measure teacher trait perceptions. After these instruments and their construction have been described, we will return to the main narrative of the research.

Education Scale I

Education Scale I, or ES-I, is a 20-item, seven-point summated-rating scale that was developed from the educational attitudes Q studies mentioned earlier (Kerlinger, 1956, 1958). In both studies, two main factors, "progressivism" (A) and "traditionalism" (B), emerged. Factor arrays were calculated for each of these factors in both studies. To repeat a bit of the discussion on factor arrays in Chapter IV, it is as though we had a Q sort that, in the case of Factor A, say, was sorted by a "pure" progressive. All the items that had high saturations of "A-ness" and "B-ness" were drawn from the arrays of both studies. Items highly saturated with a factor were selected by taking the 12 most approved statements of each Q array (A and B). Then more statements were taken from the high positive ends of the arrays until there was a total of 40 statements, 20 A and 20 B.

The 40 statements were put into a seven-point summated-rating scale and administered to some 200 graduate students of education and individuals outside the university (Kerlinger and Kaya, 1959a). Item-total correlations were calculated

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[1] Much of the discussion in this chapter has been published (Kerlinger, 1967b).

(total A and B scores). These correlations were used in conjunction with the Q factor-array values to select 10 A and 10 B items for two scales, ES-I and ES-II.[2]

ES-I was administered to 136 undergraduate education students, 157 graduate education students, and 305 people outside the university. The factor analysis of the correlations among its 20 items yielded two relatively orthogonal factors. (The mean of the correlations between the A and B items was -.11. Other estimates from other samples of the correlation between the A and B dimensions range from about .00 to about -.40, with an average of about -.20 to -.25.) These two factors were clearly the A and B factors built into the scales. The odd-even reliabilities of A and B of ES-I were .75 and .83 for the whole sample of 598, but were lower for the individual samples, from .54 to .79. The repeat reliabilities, for a sample of 106, were .70 and .71. The scale successfully differentiated the three groups of subjects on both A and B (Kerlinger and Kaya, 1959b). Its factors were also found to be quite stable or invariant over different samples (Kerlinger, 1961).

In short, ES-I is a factorially valid and fairly reliable measure of progressivism and traditionalism. While a scale of higher reliability would have been desirable, we decided to use ES-I in the beginning of the present study. A copy of the scale will be found in the Appendix.

Education Scale VI

The work described above and subsequent work showed that ES-I was not an entirely satisfactory scale. It had too few items to cover the educational attitude domain and was not reliable enough. Further scale development and study were clearly indicated.

The Problem and the Theory

The study of Education Scale VI, or ES-VI, to be described now was designed to remedy the deficiencies of earlier studies, to supply more definitive answers to basic questions about educational attitudes, and to supply a new reliable and valid measure of educational attitudes. The study problems are expressed in the following questions:

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[2] Since ES-II was not used in the present research, it is not described here. It may be said, however, that it was an effective instrument of a forced-choice nature. (See Kerlinger and Kaya, 1959a, for a complete description.) It was not used in the present research because its forced-choice nature induced spurious correlation between the A and B dimensions.

1. What is the factorial nature of educational attitudes? Do they form a bipolar continuum, two separate factors, or many factors? What are the relations among the factors? What is their content?

2. Are educational attitudes factors invariant over different samples?

The main expectation was that two basic factors, relatively uncorrelated with each other, underlie attitudes toward education. While there may be subfactors, and these subfactors may differ in number and minor content with different samples, the basic factors will remain invariant over different samples (cf. Thurstone, 1947, Ch. XVI). The theory of social attitudes underlying this expectation and partially tested in this sub-study was outlined in Chapter II. To clarify the theoretical basis of the sub-study, however, we here repeat some of the earlier discussion and elaborate it in the present context.

Orthogonality and dualism of social and educational attitudes inhere in what will be called the criterial referents of the attitudes and in the broad social trends of our culture. An "attitudinal referent" is a construct that stands for a set or category of social objects, ideas, or behaviors that can be the focus of an attitude. Religion, Negro, private property, self, subject matter, teaching, discipline, and marriage, for example, are possible referents of attitudes.

"Criterial" connotes a means of judging relevance. We say, if a referent is criterial for an individual, that it acts as a standard for him; it is relevant and significant for him. Referents of attitudes are criterial in different ways for different individuals. What is relevant for one individual is not necessarily relevant for another individual. Indeed some individuals are indifferent to many referents. In the case of educational attitudes, the universe of referents is assumed to fall into two subsets, forming a basic dualism that is expressed in the concepts "progressivism" and "traditionalism." For the traditionalist, for example, discipline, subject matter, moral standards, and the like are criterial. Such referents as individual differences and social learning, criterial to the progressive, may not be criterial to the traditionalist. In brief, an individual's educational attitudes are assumed to be based upon the educational referents that are criterial for him.

It was said above that the two basic factors underlying attitudes toward education are relatively uncorrelated with each other. By "relatively uncorrelated" is meant low negative correlation. An explanation of this relative orthogonality is as follows.

Let A be a set of educational referents criterial for progressives and B a set of referents criterial for traditionalists. (It is assumed for the present theoretical purpose that progressives and traditionalists are identified by an independent method.) The two sets, A and B, are assumed to represent independent and distinct ways of regarding the "objects" of education. It is also assumed that A and B are not both criterial for the same individuals. While common sense suggests that individuals who approve statements with A referents should disapprove B statements--that progressives are antitraditional in their attitudes, in other words--this is not a necessary conclusion. In fact it is probably not correct. Since attitudes are said to be based on the criteriality of referents, there is no basis for knowing and predicting how progressives will respond to statements containing B referents or how traditionalists will respond to statements containing A referents. This means that progressives and traditionalists will respond heterogeneously to statements that contain referents that are, for them not criterial.

There are many adventitious sources of variance of the responses to any set of attitude items: yeasaying and naysaying tendencies, social norms and values expressed in some of the items, knowledge and interest, confusion of issues, and so on. Criteriality of referents is assumed to be the strongest source of variance. Therefore, when a set of referents is not criterial for a group of individuals, there is no main basis for systematic response that is strong enough to override these other sources of variance.

Nevertheless, while the responses of progressives to B statements will be heterogeneous, they will tend to be indifferent or mildly opposed to some B statements. Although for any particular progressive individual the B referents will in general not be criterial, the statements will here and there contain referents that have become negatively criterial for him. The tendency toward negative criteriality, however, will be strong only with rather extreme individuals and groups. The net results, when many unselected individuals respond to A and B attitude statements, will be a low negative correlation between A and B. We say, then, that the two dimensions are "relatively uncorrelated." True bipolarity will appear only when, in a particular sample, a referent or set of referents is criterial for two sets of individuals, positively for one and negatively for the other.

Dualism of attitudes is perhaps due to the culture in which the individual learns his attitudes and to the general economy of cognitive processes that is based on the tendency to dichotomize when categorizing, putting objects into categories A and not-A, B and not-B (see Bruner, Goodnow, and Austin, 1956, Ch. 1).

The empirical implications of the theory for the present sub-study are as follows. Educational attitudes are dualistic: two general factors will account for most of the common factor variance of educational attitude items. Although these factors may emerge in first-order factor analysis, they are more likely to emerge in second-order factor analysis as second-order factors. Attitude scales that are constructed in accordance with the requirements of the theory will yield two relatively uncorrelated (orthogonal) sets of factors, and the factors within the two sets will be positively correlated. Bipolarity will in general appear only under the conditions outlined earlier.

Method

A 46-item scale, with 23 A (Progressivism) and 23 B (Traditionalism) items, was constructed from a pool of some 100 items used in the research already described. The following criteria guided item selection: (1) factor loadings greater than .34 on one factor only; (2) item-total r's greater than .34: A items with A totals and B items with B totals; and (3) wide coverage of educational attitude content. Redundant items were deleted, and some items were rewritten to improve wording. Since ES-I, the predecessor of ES-VI, yielded reliabilities only in the .70's, it was decided to increase the number of items to about 50 to increase the probability of adequate reliability. Unfortunately it was not possible to find 50 items that satisfied all three criteria. The 46 items that satisfied the criteria most adequately were interspersed at random in a seven-point summated-rating scale. The instructions emphasized honest response by stressing the wide variety of response possible. (ES-VI will be found in the Appendix. The instructions are included with the scale.)

ES-VI was administered to three samples: (1) 344 New York University graduate students of education and teachers in New York (NY), (2) 404 University of North Carolina graduate students of education (NC), and (3) 556 University of Houston graduate students of education and teachers in Texas

(T), a total of 1304 subjects.[3] The scales were administered to the New York subjects in the spring, summer, and winter of 1964 and to the remaining subjects in the winter and spring of 1965.

Means, standard deviations, the correlations between *A* and *B* total scores, and internal consistency reliability estimates for the three samples are shown in Table V-1. Three estimates of the reliabilities of the *A* and *B* measures were calculated: alpha, the generalized variance estimate, odd-even, and average-*r* (Guilford, 1954, pp. 377-386; Cronbach, 1951), the latter two corrected with the Spearman-Brown formula. The estimates of the three methods were close: the largest difference was .03. The alpha estimates are reported in Table V-1.

The similarity of the statistics of the three samples is apparent. The lower *A* and higher *B* means of the Texas sample and the lower *A* standard deviation of the North Carolina sample are the only discrepancies in the table, and they are not large enough to warrant comment (though some of them are statistically significant). The reliabilities of the *A* and *B* measures are satisfactory. The meaning of the low negative correlations between the *A* and *B* sub-scales will become clear later (see, also, Kerlinger and Kaya, 1959b).

The responses to the 46 items of each of the three samples were intercorrelated and the correlation matrices analyzed in three ways: (1) principal axes factor analysis, with R^2 as estimated communalities (Harman, 1960, Ch. 9 and p. 89) and Varimax rotations of four factors (Kaiser, 1958); (2) principal axes factor analysis, with iterated approximations to the communalities and oblique rotations of eight factors; and (3) second-order principal axes factor analysis of the primary factor correlations, i.e., factor analysis of the correlations among the oblique factors (Thurstone, 1947, Ch. XVIII). The method used for oblique rotations of the first-order factors, Promax, was suggested by Hendrickson and White (1964) and

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[3] ES-VI was also administered to 161 graduate students of education in Canada (by Professor Thomas Linton, now at the University of Wisconsin at Milwaukee) and to a heterogeneous sample of 228 professors and students in New York (see Hofman, 1964). To conserve space, the data of these samples will not be reported. The results add little to the study; they were similar to the results obtained with the three samples mentioned above.

Table V-1

Means, Standard Deviations, Reliabilities, and Correlations Between *A* and *B* Measures, ES-VI: NY, NC, and T Samples

		NY	NC	T
N		344	404	556
M:				
	A	5.51	5.51	5.25
	B	4.14	4.19	4.43
SD:				
	A	.71	.54	.67
	B	.85	.74	.74
r_{tt}:				
	A	.85	.79	.83
	B	.86	.83	.82
r_{AB}:		-.30	-.27	-.18

amended by Saunders.[4] Graphic orthogonal rotations were used with the second-order factors. Simple structure was the objective of both kinds of rotations (Thurstone, 1947, pp. 181-182; 334-335).

The purpose of the first factor analytic method (four factors) was to test factorial invariance. With increasing numbers of factors the agreement between factors of different samples tends to decrease (Peterson, 1965) because error and sample specificity have relatively greater influence. It was felt, therefore, that comparisons of solutions with fewer factors would furnish more accurate tests of congruence than comparisons with many factors. Nevertheless, the four- and eight-factor solutions were both compared using the coefficient of congruence (Harman, 1960, p. 257).

The second and third methods supply the basic data of the study. The first-order eight-factor oblique solution had two purposes: to study the content of educational attitudes by providing factor arrays (lists of items loaded on the factors), and to supply the correlations among the factors for direct study and for second-order factor analysis. The third method, second-order factor analysis, of course, made possible the testing of the two-factor hypothesis stated earlier. It also permitted identification of the presumed basic entities underlying the items of ES-VI.

Results

Visual inspection and comparison of the four-factor orthogonally rotated matrices of the three samples showed that the same items were in general significantly loaded ($\geq .35$)

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[4] Personal communication. This method consists of first rotating the factors to an orthogonal Varimax solution and then obtaining a transformation matrix, $\underline{L}$, by raising the Varimax solution loadings to some power, $\underline{k}$ (normally ranging between 2 to 4), calling this powered matrix $\underline{P}$, and calculating $\underline{L}$: $\underline{L} = (\underline{F}'\underline{F})^{-1} \underline{F}'\underline{P}$, where $\underline{F}$ = the orthogonal Varimax matrix. The columns of $\underline{L}$ are then normalized. The application of $\underline{L}$-normalized to $\underline{F}$ provides the oblique solution. Promax yields solutions very close to reference axes structure solutions (Harman, 1960, Ch. 13). Saunders' version of Promax, Proequamax, consists merely of substituting Equamax orthogonal rotations for the Varimax rotations. Equamax spreads the common factor variance over the rotated factors more equably than Varimax, though there would seem to be little practical difference between the two methods.

on the same factors.[5] More objectively, the coefficients of congruence calculated between the factor vectors of the three solutions were high. They are given in Table V-2. Accepting .80 as good agreement, it is apparent that the congruences among the solutions are satisfactory. Only one coefficient is less than .80; most (9 of 12) are over .90. The agreements between the factors of the eight-factor oblique solutions were, as expected, less satisfactory. They are given in Table V-3. Of the 24 comparisons, 16 show satisfactory agreement ($\geq .70$). Eight show less than satisfactory agreement. The median of the coefficients is .73. Putting heavier emphasis on the first and more dependable test, factorial invariance seems reasonably well-established.

To test the two-factor hypothesis requires a sufficient number of factors in the oblique solution to define two or more second-order factors. Too many factors, on the other hand, tend to spread the item loadings over the factors excessively, as well as to emphasize factor idiosyncrasy. Since there are no generally accepted adequate criteria for the number of factors to rotate (Overall, 1964), and since, in the interests of parsimony and generality, as few factors as possible are desirable (Peterson, 1965), a pragmatic procedure was followed: four-, eight-, ten-, and fifteen-factor solutions were tried. The eight-factor solution was chosen for all three samples because eight factors adequately defined the second-order factors, they yielded good simple structures in both the first- and second-order analyses, and they did not lead to excessive spread of factor loadings.[6]

Factor-by factor comparisons of the rotated factors showed good or fair agreement among the three samples. (See, also, Table V-3.) Discussion and interpretation of the factors,

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[5] A significance level of .35 was selected for the orthogonal solutions and a level of .25 for the oblique solutions. The reason for the difference is that oblique factor loadings are generally lower than orthogonal loadings.

[6] The 10-factor solution, too, was satisfactory, but it was thought best to use as few factors as possible and still satisfy the above conditions (see Peterson, 1965). The 15-factor solution was quite inadequate: a plot of the first two second-order factors looked almost like a plot of random variables.

Table V-2

Coefficients of Congruence Between Rotated Factor Vectors of ES-VI Orthogonal Four-Factor Solutions, NY, NC and T Samples

	Factors			
	I	II	III	IV
NY-NC	.92	.94	.92	.80
NY- T	.97	.96	.91	.88
NC- T	.93	.95	.95	.75

Table V-3

Coefficients of Congruence Between Rotated Factors of ES-VI Oblique (Eight-Factor) Solutions, NY, NC, and T Samples

	I	II	III	IV	V	VI	VII	VIII
NY-NC	.89	.86	.78	.78	.75	.53	.70	.66
NY-T	.73	.79	.90	.58	.81	.45	.73	.72
NC-T	.85	.72	.64	.55	.83	.83	.68	.63

therefore, are limited for the most part to the New York sample.[7]

Inspection of the rotated matrix of the New York sample showed clearly that the *A* and *B* items (*A* = Items 1-23; *B* = Items 24-46) loaded on different factors. Factors II, III, IV, and VII are *A* factors, with 6, 4, 5, and 6 *A* items loaded on each factor respectively. Factors I, V, VI, and VIII are *B* factors, with 8, 3, 9, and 2 *B* items on each factor. There was little evidence of bipolarity. Only three factors had significant ($\geq$.25) negative loadings: IV, V, and VIII, each with one such loading. *A* and *B* are evidently two distinct subsets of the attitude domain.[8]

The correlations among the primary factor vectors are given in Table V-4; the two unrotated and rotated second-order factors, with their *A* and *B* factor designations, are displayed in Table V-5. Study of Table V-4 shows that the *A* factors are positively correlated with each other, as are the *B* factors with each other. The only real evidence of bipolarity is shown by the correlations of Factor I with Factors III, IV, and VII; otherwise the correlations between the *A* and *B* factors hover around zero.

The rotated matrix in Table V-5 confirms the analysis just given: only Factor I has a significant ($\geq$.35) negative loading; the non-significant loadings hover around zero. More important, it can be seen that the *A* factors--II, III, IV, and VII--are loaded on one second-order factor, and the *B* factors--I, V, VI, and VIII--are loaded on the other second-order factor. A plot of the two sets of loadings, *A* and *B*, is given in Figure V-1. It can be seen rather vividly that the second-order analysis confirms the theoretical expectation: the *A* factors lie close to one axis, and the *B* factors, with

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[7] The correlation matrix and the unrotated and rotated eight-factor oblique solutions of the three samples have been deposited with the American Documentation Institute. Order Document No. 9347 from ADI Auxiliary Publications Project, Photoduplication Service, Library of Congress, Washington, D.C. 20540. Remit in advance $1.75 for microfilm or $2.50 for photocopies and make check payable to: Chief, Photoduplication Service, Library of Congress.

[8] The results of the North Carolina analysis agreed closely with those of the New York analysis. The Texas results, on the other hand, showed somewhat more bipolarity and certain differences in the first-order factors themselves. Nevertheless, the second-order analysis clearly revealed the basic two-factor structure.

Table V-4

Correlations Among Primary Factor Vectors,
New York Sample, N=344[a]

Factor	I	II	III	IV	V	VI	VII	VIII
I	1.00	-.05	-.31	-.35	.38	.22	-.25	.26
II	-.05	1.00	.19	.40	.04	-.08	.30	-.08
III	-.31	.19	1.00	.13	-.09	.06	.46	-.11
IV	-.35	.40	.13	1.00	.00	-.10	.26	-.09
V	.38	.04	-.09	.00	1.00	.27	.06	.36
VI	.22	-.08	.06	-.10	.27	1.00	.02	.28
VII	-.25	.30	.46	.26	.06	.02	1.00	-.14
VIII	.26	-.08	-.11	-.09	.36	.28	-.14	1.00

[a] II, III, IV, VII: A factors; I, V, VI, VIII: B factors.

Table V-5

Unrotated and Rotated Second-Order Factor Matrices, New York Sample, *N*=344[a]

Factors	Unrotated Matrix		Rotated Matrix		Factor Type
I	-.64	.17	-.38	.54	*B*
II	.35	.32	.47	.02	*A*
III	.47	.25	.52	-.11	*A*
IV	.44	.22	.48	-.12	*A*
V	-.40	.58	.06	.70	*B*
VI	-.27	.33	.00	.43	*B*
VII	.53	.45	.70	.00	*A*
VIII	-.43	.30	-.13	.51	*B*

[a] Significant loadings (≥.35) are underlined. II, III, IV, VII : *A* factors; I, V, VI, VIII: *B* factors.

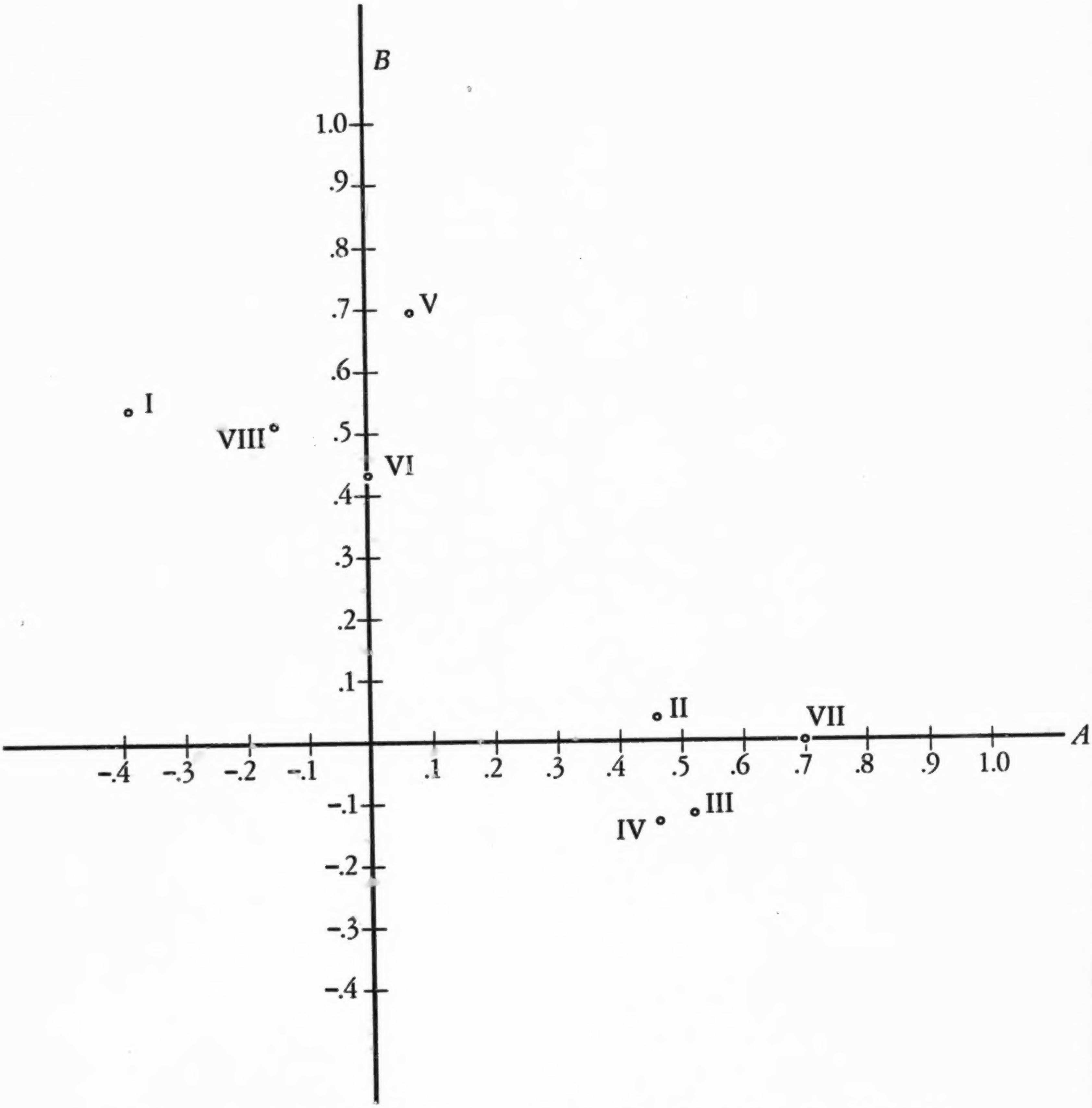

Fig. V-1. Rotated Second-Order Factors, ES-VI, New York Sample, $N = 344$. *A*: Progressivism; *B*: Traditionalism.

the exception of Factor I, lie close to the other axis.

The factor arrays of the eight oblique factors are given in Table V-6. The A and B factors have been grouped together for interpretative purposes. Factor II, the First A factor displayed in Table V-6, is suffused with items expressing open and critical examination of social ideas, one of the major notions associated with that aspect of progressivism known as Experimentalism.[9] It is so named. Factor III's items seem closely related to Factor II's, with the additional notion of active social change. Hence it is called Reconstructionism (see Brubacher, 1950, pp. 303-305).

Factor IV is permeated with some of the basic notions of progressive education, but particularly those notions associated with life-adjustment, the pragmatic idea that education should aid the child in his adaptation to this environment (see Brubacher, 1950, pp. 298ff.). Factor VII's items are strongly child-centered. It is called "Romantic Naturalism," using Brubacher's (1950, pp. 305-307) term, since the romantic naturalist puts strong emphasis on the child's interests and needs.

The items of Factor I, the first of the B factors, are centered on criticisms of the public schools. Each of its five items with the highest loadings expresses one or another facet of such criticism. We call it "Criticism of the Schools." Factor V has only three items. They seem to express the identification of learning with storing up knowledge. Factor VI is more difficult to interpret and to name because its items are more heterogeneous. They seem, however, to express ideas closely associated with conservatism (see Rossiter, 1962, Ch. II). It is, therefore, called "Educational Conservatism." The final B factor is bipolar. With only two items, it has not been named, even though both items seem to reflect aspects of academic freedom.

The factor arrays and their interpretation and the results of the second-order analysis, in which one second-order factor had only A factors and the other only B factors, seem to lead to the conclusion that these second-order factors are "progressivism" and "traditionalism." Of the four first-order factors, three outline well-known progressive philosophies, while the fourth expresses a strong progressive theme, life adjustment. Similarly, the themes of three of the four first-order B factors express ideas associated with "traditionalism."

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[9] For discussions of this and other philosophies of education, see Brubacher (1950), Dupuis (1966), and Morris (1961).

Table V-6

Factor Arrays of Oblique Factor Analysis, ES-VI, New York Sample, N=344[a]

Factor I: Criticism of the Schools

.527	43.	One of the big difficulties with modern schools is that discipline is often sacrificed to the interests of children. (B)
.460	45.	The movement to substitute "activities" for subjects in the curriculum of the modern school will operate against the best interests of American education. (B)
.447	42.	The modern public school is sacrificing too much of our cultural heritage in its preoccupation with life-adjustment and group living. (B)
.415	46.	Children need and should have more supervision and discipline than they usually get. (B)
.395	29.	Many schools waste time and money on fads and frills: activity programs, driver education, swimming pools, social services and the like. (B)
.337	39.	What is needed in the modern classroom is a revival of the authority of the teacher. (B)
.334	25.	The backbone of the school curriculum is subject matter; activities are useful mainly to facilitate the learning of subject matter. (B)
.331	24.	Schools of today are neglecting the three R's. (B)

Factor V: Learning as Storing Knowledge

.578	28.	Learning is essentially a process of increasing one's store of information about the various fields of knowledge. (B)

(continued)

.446 34. Each subject and activity should be aimed at developing a particular part of the child's makeup: physical, intellectual, social, moral, or spiritual. (B)

.417 31. The true view of education is so arranging learning that the child gradually builds up a storehouse of knowledge that he can use in the future. (B)

Factor VI: Educational Conservatism

.497 37. Teachers should keep in mind that pupils have to be made to work. (B)

.415 38. Schools should teach dependence on higher moral values. (B)

.402 41. One of the basic purposes of education is to conserve and transmit the values and standards of the society of which it is a part. (B)

.393 39. What is needed in the modern classroom is a revival of the authority of the teacher. (B)

.337 35. Since life is essentially a struggle, education should emphasize competition and the fair competitive spirit. (B)

.280 30. It is essential for learning and effective work that teachers outline in detail what is to be done and how to go about it. (B)

.279 43. One of the big difficulties with modern schools is that discipline is often sacrificed to the interests of the children. (B)

.270 31. The true view of education is so arranging learning that the child gradually builds up a storehouse of knowledge that he can use in the future. (B)

.259 46. Children need and should have more supervision and discipline than they usually get. (B)

(continued)

Factor II: Experimentalism

.581	23.	In a democracy, teachers should help students understand not only the meaning of democracy but also the meaning of the ideologies of other political systems. (A)
.554	19.	Subjects like communism and capitalism should be studied in the public schools. (A)
.538	13.	Teachers should encourage pupils to study and criticize our own and other economic systems and practices. (A)
.447	20.	Children should be taught that all problems should be subjected to critical and objective scrutiny, including religious, moral, economic, and social problems. (A)
.369	12.	Learning is experimental; the child should be taught to test alternatives before accepting any of them. (A)
.314	22.	Education is not so much imparting knowledge as it is encouraging and prompting the child to use his potentialities for learning. (A)

Factor III: Reconstructionism

.648	16.	Education and educational institutions must be sources of new social ideas. (A)
.622	7.	Education and educational institutions must be sources of new social ideas; education must be a social program undergoing continual reconstruction. (A)
.530	2.	The American public school should take an active part in stimulating social change. (A)
.320	3.	The traditional moral standards of our culture should not just be accepted; they should be examined and tested in solving the present problems of students. (A)

(continued)

Factor IV: Life Adjustment

.573	10.	Emotional development and social development are as important in the evaluation of pupil progress as academic achievement. (A)
.432	4.	The healthy interaction of pupils one with another is just as important in school as the learning of subject matter. (A)
.411	8.	The learning of proper attitudes is often more important than the learning of subject matter. (A)
.373	11.	It is more important that the child learns how to approach and solve problems than it is for him to master the subject matter of the curriculum. (A)
.358	9.	Learning experiences organized around life experiences rather than subjects is desirable in our schools. (A)
-.249	25.	The backbone of the school curriculum is subject matter; activities are useful mainly to facilitate the learning of subject matter. (B)

Factor VII: Romantic Naturalism

.472	15.	We should fit the curriculum to the child and not the child to the curriculum. (A)
.405	18.	The goals of education should be dictated by children's interests and needs, as well as by the larger demands of society. (A)
.402	6.	Right from the very first grade, teachers must teach the child at his own level and not at the level of the grade he is in. (A)
.385	1.	Teaching should be based on the present needs of the child. (A)
.370	14.	True discipline springs from interest, motivation, and involvement in live problems. (A)

(continued)

.338	5.	Children should be allowed more freedom than they usually get in the execution of learning activities. (A)

Factor VIII: Unnamed

.521	32.	Teachers need to be guided in what they are to teach. No individual teacher can be permitted to do as he wishes, especially when it comes to teaching children. (B)
-.561	17.	Teachers should be free to teach what they think is right and proper. (A)

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[a] Factor loadings precede each item. Loadings ≥ .25 were considered significant. Each item is identified with its type, A (Progressivism) and B (Traditionalism).

Discussion

The results of this study extend, refine, and partially explain the results of earlier studies, as well as point up implications for attitude measurement. First, the apparent inconsistency of predicting two educational attitude factors and actually getting more than two factors is resolved. When we resort to a higher level of factor analysis, we see that theory and empirical evidence agree. We are able to reduce a multifaceted attitude domain to two basic factors. The evidence for the empirical "reality" of progressivism and traditionalism, then, is strong.

Second, the study evidence also shows how and why it is possible to measure the A and B dimensions successfully, even though they are multidimensional. Despite the emergence of eight interpretable factors, the A and B measures, both combinations of three or more factors, consistently show substantial reliabilities. This is explained by the positive correlations among the A and the B first-order factors and by item variance summation, a phenomenon long ago elucidated by Cronbach (1951).

When we examine the rotated first-order factor matrices we find, along with the larger loadings, many small positive loadings, on each factor. The cumulative effect over many items is to produce positive correlations among the item clusters and among the factors. In addition, Cronbach showed that, under certain conditions, the cumulative effect of a general or large group factor is to increase the reliability of a test. He pointed out that as a test is lengthened such a factor will account for more and more of the total test variance. This seems to be what happens in the present case of the A and B "general" factors. Thus, we can effectively measure A and B even though we know that both are multifactorial.

Third, the lack of bipolarity in the data further supports the theory. It will be recalled that the theory states that bipolarity will appear only under certain conditions that can be specified. Although no attempt was made in this study to test this notion by specific prediction, the amount of bipolarity that did appear seems consistent with the theory.

Fourth, the substantial degree of factorial invariance found in this study with samples from different regions of the country is encouraging. Although there were differences, especially between the Texas sample and the other two samples, the large factors emerged clearly in all three samples.

Finally, the factors of the first-order analysis, as defined by the items (Table V-6), are unusually interesting because they were similar in all three samples and because the progressive factors seemed to define different progressive philosophies of education rather than substantive educational areas, whereas the traditional factors pretty much reflected educational conservatism and dissatisfaction with modern education.

In sum, the evidence of this sub-study of our larger study and the studies that preceded it supports the contention that educational attitudes consist of two relatively independent basic dimensions that can legitimately be called "progressivism" and "traditionalism," and it casts doubt on the notion that educational attitudes form a bipolar continuum. It also seems to indicate that a complex domain can be successfully measured as a single domain, if the dimensions of the domain are positively correlated and form a second-order factor.

Education Scale VII

Education Scale VII, or ES-VII, is a 30-item, seven-point, summated-rating scale with 15 A and 15 B items. The items of ES-VII were selected on the basis of the item-total correlation analyses and factor analyses of the items of ES-VI. The criteria used were, in general: (1) item-total correlations greater than .34 in all the three main samples, A items with A totals and B items with B totals; (2) factor loadings greater than .34 on one factor only (of a four-factor orthogonally rotated solution); and (3) adequate coverage of the educational attitude domain. The instructions used were the same as those used with ES-VI except for minor emendations. (ES-VII can be found in the Appendix.)

The scale was administered to 620 teachers and graduate students of education in Long Island and Indiana. The means and standard deviations are like those of ES-VI. The means and standard deviations of the Long Island samples, A and B, respectively, are: 5.54, .69; 4.34, .85. Those of the Indiana sample are: 5.51, .60; 4.24, .65. The reliabilities (alpha) are, for Long Island, A and B: .79, .78, and for Indiana: .76, .69. The correlations between the A and B subscales for Long Island and Indiana are -.15 and .02. The two N's are 298 and 322. With the exception of the B subscale, of the Indiana sample, the reliabilities are adequate.[10] The low correlations between A and B perhaps reflect the method of item selection.

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[10] There seems to have been something idiosyncratic about the Indiana sample, judging from all the evidence. The re-

The item-total correlations of each sample were calculated. All the r's were substantial ($\geq .35$) with one exception, Item 23 in the Indiana sample (.28).

The intercorrelations of the 30 items of ES-VII were factor analyzed with the principal axes method and Varimax rotations. In the factor analyses, the Long Island sample, N=298, and part of the Indiana sample, N=159, were combined since the separate factor analyses of the data of the two samples were quite similar and a larger sample was wanted in order to obtain as stable a factor solution as possible and to wash out factor and sample idiosyncrasy. (Only 159 of the 322 Indiana cases were used because these were the subjects that had taken both ES-VII and a teacher trait perception scale to be discussed later. A "crucial" test of the basic hypothesis of the study depended on this sample, as we will see in a later chapter.)

Two solutions were used, one of two factors and the other of four factors. The first was done merely to see if the A and B items would load on separate factors. We call this a "forced" solution. Of the 15 A items, 14 loaded substantially ($> .40$) on one factor. Of the 15 B items, 11 loaded .40 or greater and one loaded .35. The other three loadings were less than .35, though positive (.25, .19, and .32). All the A cross-loadings (A items on the B factor) hovered around zero, the largest being -.15. The B cross-loadings were somewhat larger: four of them were greater than .20. This evidence seems to indicate a basic two-factor structure as predicted. We will present better evidence later.

The four-factor solution broke down the items nicely into four subsets, two A and two B. The factors, moreover, were readily identifiable. They were named "Educational Progressivism," which consisted of A items (Numbers 1 through 10) that seemed to express Romantic Naturalism and Life Adjustment themes. The second A-item factor consisted of four items (Numbers 11 through 15) that expressed Experimentalism and Reconstructionism themes. We called it "Experimentalism." The two B factors, which we called "Educational Conservatism" and "Learning as Knowledge Storehouse," consisted of Items 19, 20, 21, 25, 28, 29, and 30 for the first of these, and Items 16, 17, 18, and 24, for the second. Since these results do not add much to the ES-VI results, we do not labor them further.

The data obtained with ES-VII, then, support those obtained

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liabilities of ES-VII obtained from certain other samples were all substantial (usually .80 or greater).

with ES-I and ES-VI. While educational attitudes are multidimensional, they are basically dualistic. Moreover, the two underlying factors are relatively orthogonal to each other. Later we will see that a more powerful type of analysis will also support these generalizations.

Chapter VI

The Measurement of Perceptions of Desirable Traits of Teachers[1]

In the Q study described in Chapter IV, in which 36 educator judges sorted a set of 90 adjectives selected for possible relevance to teachers and teaching, three persons factors emerged. The items of the factor arrays calculated from the factor loadings of those judges substantially loaded on Factor A consisted of adjectives that seemed to characterize a "progressive" teacher: imaginative, insightful, warm, flexible, and so on. Factor B's items, on the other hand, epitomized what seemed to be a "traditional" teacher: conscientious, moral, efficient, just, self-controlled, among other traits. The nature of Factor C was not readily categorized. It consisted of adjectives like enthusiastic, inquisitive, decisive, purposeful, and sincere. The main point is that there were three distinct factors and thus three kinds of judges, or three different perceptions of the "good" teacher.

This sub-study of the main study continues, in an R methodological framework, the earlier research. It follows the general methodological approach of the sub-study reported in Chapter V. The basic questions that require answers are:

1. What factor or factors underlie perceptions of the desirable traits of teachers, and what is the nature of the factor structure of such perceptions?

2. Are the factor structures behind perceptions of desirable traits of teachers and the factor arrays associated with the factor structures invariant over different samples?[2]

The first question, of course, is the more important one. It implies the number of factors, the structure of the factor space, the content of the factors, and the relations among the factors. We also ask, in connection with the relations among the factors: Are there second-order factors, and, if so, what is their nature? The second question is partly methodological; it will be discussed later.

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[1] The main portion of the research described in this chapter will be published (Kerlinger, in press).

[2] We now use the expression "factor array" to mean a listing of the items loaded substantially on a factor. This usage is essentially the same as that in Q methodology except that the arrays in this case are derived directly from the factor analytic results whereas in Q they are derived indirectly: from the persons' factor loadings to the items, or arrays of items.

It was hypothesized in the Q study that two factors would appropriate most of the common factor variance and these factors would be congruent with "progressive" and "traditional" notions of education and teaching. The same hypothesis is tested in this study. The reasons for the hypothesis were given in Chapter II and will not be elaborated here except to say that it was expected that the basic assumed duality of educational attitudes would be reflected in perceptions of teacher characteristics. It was also expected that the same factors would emerge in different samples and that the Q factor arrays of the previous study and the arrays of the present R study would be similar.

The content of the factors was expected to reflect the content of educational attitudes factors, the progressivism attitude factor in one trait factor, and the traditionalism attitude factor in another trait factor. Furthermore, since Ryans' X_o, Y_o, and Z_o patterns (1960a, pp. 102ff.) seemed to be reflected in the Q arrays of the earlier study, it was expected that they would also be reflected in the trait arrays of this study.

Method

Teacher Characteristics Scale I

A 38-item, seven-point, summated-rating scale, Teacher Characteristics Scale I, or TC-I, was constructed from the 90 items of the Q sort whose construction and use were described in Chapter IV. It will be recalled that the 90 items (adjectives) had been selected from a pool of 350 to 400 traits originally culled from the Allport-Odbert (1936) list of some 18,000 traits on the basis of their presumed relevance to teaching and from Barr's (1950) and Charters and Waples' (1929) lists of traits. The criteria of selection were given in Chapter IV.

The instructions told the subjects that they were judges who should use the traits to describe the "good" teacher. They were further instructed to use the criterion "how important it is for teachers to have the traits" and to be general in their judgments but when in doubt to "think of the public school teacher." The use of the whole scale of numbers from

1 through 7 was emphasized to counteract the tendency to use only the higher (more favorable) numbers.[3] A copy of TC-I has been included in the Appendix.

The Samples

TC-I was administered to five samples, each consisting of teachers, or graduate students of education, or both: (1) New York ($\underline{N}$ = 131), (2) New York ($\underline{N}$ = 313), (3) North Carolina ($\underline{N}$ = 404), (4) Texas ($\underline{N}$ = 480), and (5) Wisconsin ($\underline{N}$ = 218). The second New York, the North Carolina, and the Texas samples together form the basic sample of this sub-study ($\underline{N}$ = 1197), as they did for the sub-study of ES-VI. Except to report basic statistics (Table VI-1), the first New York and the Wisconsin samples are not considered in this report.

Analysis

Means, Standard Deviations, and Reliabilities. The means, standard deviations, correlations between the $\underline{A}$ and $\underline{B}$ total scores, and internal consistency reliability estimates of the five samples are reported in Table VI-1 (first five lines). Three estimates of reliability, odd-even, average-$\underline{r}$, and alpha, the generalized variance estimate (Guilford, 1954, pp. 377-386; Cronbach, 1951), were calculated. The estimates of the three methods were alike: the largest difference was .038. The alpha estimates are given in the table. Evidently the $\underline{A}$ and $\underline{B}$ subscales have substantial reliability.

The means, standard deviations, and reliabilities of the five samples are quite similar. It was expected that the $\underline{A}$ trait means would be higher than the $\underline{B}$ trait means because of the presumably higher social desirability values of the $\underline{A}$ adjectives. The tabled means, however, do not show the expected discrepancy. Evidently $\underline{B}$ traits are equally and highly valued on the average. This is probably a reflection of the notion that teachers should possess all desirable traits; they are, or should be, personified virtue.

The reliabilities, too, are surprising: they are higher than expected. To obtain reliabilities in the .80's for judg-

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[3] Two pair-comparisons scales using some of the adjectives that had high values on the $\underline{Q}$ factor arrays were also constructed and used. They were not successful and so were abandoned. Other adjectival scales that were constructed will be described later.

Table VI-1

Means, Standard Deviations, Reliability Coefficients, and Correlations Between Factor Scales: TC-I and TC-VIII

		A			B			
Sample[a]	N	M	s	r_{tt}[b]	M	s	r_{tt}	r_{AB}
N.Y.	131	5.37	.76	.84	5.45	.86	.86	.27
N.Y.	313	5.53	.72	.82	5.12	.82	.83	.40
N.C.	404	5.28	.69	.80	5.45	.68	.79	.51
Tex.	480	5.21	.74	.83	5.59	.69	.80	.61
Wisc.	218	5.26	.68	.77	5.15	.70	.77	.34
L.I.	298	5.07	.87	.80	5.22	.84	.82	.33
Ind.	159	4.94	.69	.69	5.16	.77	.77	.23

[a] The first five lines are TC-I statistics; the last two lines are TC-VIII statistics.

[b] Alpha reliability coefficients.

ments of single adjectives is worthy of special notice. The correlations between the A and B subscales, all positive and some of them substantial, were not as surprising, even though relative independence was expected because of the factor mode of item selection.

Factor Analysis. The responses to the 38 A, B, and N items of the second New York, the North Carolina, and the Texas samples were intercorrelated and factor analyzed separately, using first- and second-order factor analysis. The purposes of the first-order factor analysis were to test factorial invariance and to study the structure and content of TC-I in the usual way. The first-order analysis, in other words, would help to answer the first question asked earlier. The purposes of the second-order analysis were to study the structure underlying the first-order factors and the relations among the factors and to determine, if possible, the nature of the second-order factors. The second-order analysis, then, should, if successful, enrich the answer to the first question.

In the first-order analysis, the principal axes method, with R^2 as estimated communalities (Harman, 1960, Ch. 9 and p. 89), and Varimax rotations (Kaiser, 1958) were used.[4] Four factors were rotated in each sample on the basis of eigenvalues greater than 1.00, Humphreys' rule (Fruchter, 1954, pp. 79-80), and informed judgments of the "correct" orthogonal solution.

To test factorial invariance and to determine the legitimacy of combining the samples, the factor vectors of the three solutions were compared using the coefficient of congruence (Harman, 1960, p. 257). Because the first-order factor structures of the three samples seemed virtually the same, and since the means and standard deviations were also quite similar, the data of the three samples were combined to form one large sample of 1197 subjects. This was done to minimize error variance and sample specificity. Again, four factors were extracted and rotated orthogonally.

The second-order factor analyses were more complicated. Using principal axes factor analysis, with iterated approximations to the communalities and oblique Proequamax rotations (Hendrickson and White, 1964; Saunders, personal communication), 4, 6, 7, and 8 factors were extracted and rotated to simple structure. The agreement among the rotated solutions was visually checked row by row.

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[4] Following a recommendation of Thurstone (1947, pp. 367-369), the scores of the New York (N = 313) sample were normalized before factoring. The results were virtually the same as those obtained with the raw scores. Hence, all analyses reported are those of the raw scores.

The intercorrelations among the oblique primary factors were calculated (Thurstone, 1947, Ch. XVIII), and the R matrices factor analyzed with the principal axes method. In each case two second-order factors were extracted and rotated orthogonally to simple structure (as nearly as possible).

Results

First-Order Factor Analysis

The coefficients of congruence calculated between pairs of factor vectors of the first-order four-factor solutions of the three samples are reported in Table VI-2. Accepting .90 or greater as very good agreement, it is clear that, with only one coefficient less than .90, factorial invariance seems well-established.

The correlation matrix and the unrotated and rotated factor matrices of the combined (N = 1197) sample have been deposited with the American Documentation Institute.[5] The R matrix was characterized by positive and significant correlations (average r = .21) and a relative absence of near-zero and negative correlations. This has an important bearing on all other analyses, as will be seen. Perhaps most important, it means that factor separation and differentiation will be difficult, perhaps doubtful.

The eigenvalues, 8.51, 2.56, 1.84, and 1.00, indicate that three, four, or perhaps more factors are probably present. If we label the factors by the predominance of kind of items loaded on them (A or B), two of the four factors rotated were A factors, one was a B factor, and one was indeterminate (it had only two significant loadings on it). Of the 14 items originally categorized as A, all but two were loaded significantly ($\geq$.35) on factors with predominantly A loadings. Of the 14 B items, again all but two were loaded significantly

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[5] Order Document No. 9412 from ADI Auxiliary Publications Project, Photoduplications Service, Library of Congress, Washington, D.C. 20540. Remit in advance \$1.75 for microfilm or \$2.50 for photo-copies, and make checks payable to: Chief, Photoduplication Service, Library of Congress.

Table VI-2

Coefficients of Congruence Between Rotated Factor Vectors, Three Samples: New York, North Carolina, Texas

	I	II	III	IV
N.Y.-N.C.	.96	.96	.96	.90
N.Y.-Tex.	.93	.97	.98	.88
N.C.-Tex.	.96	.94	.98	.91

on the one B factor. Among the 28 A and B items, only three loaded on "opposite" factors--on a factor with B items, if an A item, and on a factor with A items, if a B item--and these three items were also loaded on their "own" factors.

From this evidence, then, the Q method of item selection seems to be fairly efficacious. That it leaves much to be desired, however, is apparent from the loadings of the 10 N, or presumably "neutral," items. It will be recalled that these 10 items had middle values--4,5, and 6 on an 11-point scale--on the Q factor arrays. But in the present study, all of them loaded significantly on one or more factors.

Second-Order Factor Analysis

With the exception of the second-order solutions of four first-order factors, the second-order analysis was not successful. To define second-order factors, of course, a sufficient number of first-order factors is required. A major difficulty, however, was that the second-order solutions using more than four first-order factors did not agree with each other, even though row-by-row comparison of the obliquely rotated matrices of the three solutions showed that the same general factor structure was present in the three sets of data.[6] Therefore only the relatively clearcut four-factor results are presented.

The correlations among the four oblique primary factor vectors of the three samples are given in Table VI-3. In each case, Factor I had both A and B item loadings, Factor II had large B loadings, while III and IV had mainly A loadings (except in the Texas sample where IV's loadings were about equally divided between A and B). The pattern is the same in the three matrices: low positive correlations, with Factors I and II, on the one hand, and III and IV, on the other hand, clustering together, and Factor IV also sharing variance with Factor I. The rotated matrices of the factor analyses of these three R matrices clarifies the picture and shows the substantial agreement among the three sets of data. More important, they show that the A and B factors do separate in factor space, despite the positive correlations among the fac-

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[6] Agreement between the New York and North Carolina eight-factor oblique and second-order solutions was good. Between the Texas and the other two solutions, however, agreement was only fair. While the three samples might have been merged to wash out error and sample factor idiosyncrasy, it was decided to be conservative and to treat the oblique first-order and the second-order data of the three samples separately.

Table VI-3

Correlations Among Primary Factors, TC-I, Four-Factor Solutions, Three Samples[a]

	N.Y.			N.C.			Tex.		
	II	III	IV	II	III	IV	II	III	IV
I	24	18	28	35	22	27	25	21	31
II		09	10		17	29		20	25
III			48			32			38

[a] Decimal points are omitted. See text for descriptions of I, II, III, and IV.

tors and the lack of clear separation of clusters of correlations. The rotated matrices are given in Table VI-4. The dual factor structure and factorial invariance are seen clearly. The A and B factor separation is only sharp, however, in the New York matrix. The other two matrices, especially the Texas one, show more the effect of the positive correlations among most of the items of TC-I, even between the A and B items. If the reader will take the trouble to plot the matrices of Table 4 on two axes, A and B, he will see both the underlying similarity and the differences among the three solutions.

Interpretation of First-Order Factors

The factor arrays of the four factors of the combined sample analysis are given in Table VI-5. Perusal of the three arrays (the fourth factor arrays have been omitted; see Footnote a in the table) yield distinctly different impressions. Four psychologists of recognized competence in the study of teacher characteristics were asked to judge the arrays.[7] Although different words were used, the judgments in essence agreed with each other: "Person-Oriented," "Affective Merit," "Humane," and "Positive Social Reinforcement" were the expressions used to describe Factor A. The factor, then, was named "Positive Person Orientation."

The judges' categorizations of Factor B were: "Responsibility-Orientation," "Managerial Merit," "Systematic-Orderly," and "Organization for Task Accomplishment." The factor was named "Systematic Task Organization."

Factor C was called by the judges "Divergent Thinking," "Motivational Merit," "Creative-Surgent," and "Freedom from Functional Fixity." These notions seem to be expressed by the name "Functional Flexibility." Factor D was not named because it had only two items on it.

Two of the four judges said that the three factors were like Ryans' X_o, Y_o, and Z_o teacher characteristic patterns. (One of the judges who did *not* mention the Ryans' patterns was Ryans himself.)

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[7] The author expresses gratitude to Professors D. Ryans, N. Gage, E. Page, and R. Turner for their help. The arrays judged were those of the New York sample because the judges' impressions were wanted when the first (New York) results were obtained. Since the factor arrays of the New York and the combined sample were almost the same, it was not thought necessary to have the latter judged again.

Table VI-4

Second-Order Rotated Matrices, Four-Factor Solutions, TC-I, Three Samples[a]

	N.Y., N = 313		N.C., N = 404		Tex., N = 480	
	A	B	A	B	A	B
I	.23	.48	.24	.54	.20	.51
II	.04	.47	.18	.57	.19	.43
III	.68	.09	.55	.15	.59	.20
IV	.66	.22	.47	.33	.50	.39

[a] Loadings $\geq$ .35 are considered significant.

Table VI-5

Factor Arrays, TC-I, Three Samples Combined, *N* = 1197[a]

A

.70	Friendly	(A)	(.53)
.64	Kind	(A)	
.61	Cheerful	(A)	
.59	Pleasant	(A)	
.57	Polite	(A)	
.52	Considerate	(A)	
.49	Sympathetic	(A)	(.64)
.51	Warm	(A)	(.65)
.41	Humorous[b]	(N)	
.37	Thoughtful[b]	(N)	
.41	Religious[b]	(B)	
.36	Moral[b]	(B)	

B

.68	Efficient	(B)	(.60)
.60	Punctual	(B)	(.61)
.59	Thorough	(B)	(.55)
.57	Industrious	(B)	(.56)
.53	Conscientious	(B)	(.54)
.51	Reliable	(B)	(.56)
.46	Sensible	(N)	(.58)
.44	Firm	(B)	(.54)
.43	Healthy	(B)	
.43	Learned	(B)	(.38)
.42	Poised	(N)	(.41)
.41	Progressive	(N)	
.41	Self-Controlled	(B)	(.37)
.45	Moral[b]	(B)	
.39	Religious[b]	(B)	
.39	Purposeful[b]	(A)	

C

.67	Imaginative	(A)	(.61)
.55	Flexible	(A)	(.38)
.46	Sensitive[b]	(A)	(.46)
.41	Warm[b]	(A)	(.65)
.39	Thoughtful[b]	(N)	
.35	Purposeful[b]	(A)	
.56	Insightful	(A)	(.34)
.53	Original	(N)	(.65)
.41	Tolerant[b]	(A)	(.55)
.39	Humorous[b]	(N)	
.38	Alert[b]	(A)	
.35	Open-Minded	(A)	(.41)

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[a] Factor loadings precede each item; item types A, B, and N (see text) follow each item. Loadings ≥.35 were considered significant. Factor *D* was omitted from the table. It had only two items: Just (*B*, .57) and Fair (*A*, .50). The items that have loadings in parentheses to the right of items are TC-VIII items. The loadings are those obtained from the analysis of the combined Long Island and Indiana sample (*N* = 457).

[b] These items were loaded on two factors.

Teacher Characteristics Scale VIII

To obtain confirmatory evidence of the factors found with TC-I and to supply another shorter and factorially "purer" TC scale, another instrument was constructed. Teacher Characteristics Scale VIII (TC-VIII) was a seven-point, summated-rating scale of 22 items, 11 A and 11 B. The items were selected on the basis of item-total r's, A items with A totals and B items with B totals, and the factor analyses just reported. The criteria for item selection were: (1) item-total r's greater than .34; and (2) factor loadings greater than .34 on one factor only (of a four-factor orthogonal solution). The B items were all on Factor B in the TC-I analysis. The A items, however, were selected from Factors A and C because the C items were considered essential to confirm the TC-I results, they were considered important in the judgment of desirable teacher traits, and the TC-I evidence showed that A and C items were factorially similar (in two-factor solutions they loaded on the same factor). (A copy of TC-VIII can be found in the Appendix.)

TC-VIII was administered to 298 teachers in New York (Long Island) and 159 graduate students of education and teachers in Indiana. The basic statistics are given in Table VI-1 (last two lines). They are similar to those of TC-I, except for the reliability of A in Indiana.[8] Each was correlated with its respective total (A or B). All items had item-total r's greater than .45 in the Long Island sample and, with one exception, greater than .40 in the Indiana sample.

The data of the two samples were factor analyzed using the principal axes method and Varimax rotations. Because the statistics and factor structures of the two samples were alike, the samples were combined (N = 457) and the resulting data factored. Two and three factors were extracted and rotated, the former to see if the A and B items would all be loaded significantly on separate factors and the latter to see if the three factors, A, B, and C, of the TC-I analysis would emerge.

In the two-factor analysis, all the A items were significantly loaded on one factor and not on the other, and all the B items were loaded on the other factor and not on the factor with the A items. The dual basis of the trait perceptions thus receives further confirmation. On the three-factor analysis, all the B items were loaded on one factor, while the A items were loaded on two factors. With two exceptions--tolerant and sensitive, which were loaded on Factor C in the TC-I analysis but on Factor A in this analysis--all the A items loaded as they had in the earlier analysis.

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[8] See Footnote 10, Chapter V, for comment on the Indiana sample.

Discussion

The results of this study and the Q study that preceded it indicate that the old question, What are the desirable traits of teachers? cannot be answered in the form in which it is put. We should ask, rather, What traits of teachers do different sets of individuals believe are desirable in teachers? There would seem to be at least three bases of judgment corresponding to the factors described earlier. We might ask about a teacher's orientation to people, her task organization or orientation, or her functional flexibility. To ask a judge to tell what an effective teacher is like requires, for an understandable answer, knowledge of the judge's basic educational orientation and knowledge of the underlying criteria (factors) he is using in making the judgments.

If the sample of traits used in the study was adequate, then, it can be tentatively said that there are three principal factors underlying perceptions of desirable traits of teachers.[9] These three factors, moreover, resemble Ryans' X_o, Y_o, and Z_o patterns. The resemblance was apparent in the Q data, but was more marked in the present data. Observations of teacher behavior and perceptions of traits seem to approach each other through the underlying factors of both.

The positive correlations in the R matrix and the resulting positive correlations between factors are worth special note. This characteristic of perceptions of desirable teacher traits, together with the substantial variances of the individual items (the standard deviations range from 1.0 to about 1.6), yields the relatively high reliabilities of the A and B subscales of TC-I and TC-VIII due, no doubt, to the variance summation principle (Cronbach, 1951).

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[9] This statement is not meant to rule out larger numbers of factors. The three principal factors can of course break down into correlative or complementary factors. A and C, for example, are correlative factors, as indicated by the extraction and rotation of only two factors and by the second-order analysis.

Two "Situational" Measures of Teacher Trait Perceptions

We felt a strong need to measure perceptions of desirable teacher-trait perceptions in a different and more realistic way. The use of only summated-rating scales, moreover, to measure perceptions of teacher traits, even though the scales seemed satisfactory, struck us as overdependence on one method. We therefore decided to try other measurement methods, namely paired-comparisons and what we call a "situational" method. We now describe the latter. Later we will describe the former.

To achieve some degree of realism, we simulated quasi-realistic "situations" and asked our subjects to role play imaginatively, to interact with situations that were familiar and perhaps interesting and that required subjects to choose among relatively difficult alternatives. When we first did this we actually did not expect to be too successful since there was little precedent for instruments of this kind. We also realized that a realistic task of choosing teachers might be even more difficult for individuals responding to paper-and-pencil instruments than it is for administrators and boards of education making the actual choices. Nevertheless, if our idea worked, we felt that our basic hypothesis would have additional, if not necessarily stronger, support.

To construct the first of the two instruments, Hiring Teachers I, or HT-I, the _A_ and _B_ adjectives that were high on the _Q_ factor arrays were incorporated in descriptions of teachers, six _A_ or six _B_ adjectives in each description. There were 18 descriptions, or items, in HT-I, each of which contained a teacher's name (always innocuous), sex (always female), marital status (always single), age (from 24 to 27), teaching experience (from four to seven years), degree (always B.S. and M.A.), degree-granting institution (types balanced between _A_ and _B_ descriptions), recommendation (always good), and, finally, the six adjectives. The descriptions, then, varied only in adjectival characterizations; all other factors were controlled. Of the 18 items, six contained _A_ descriptions, six _B_ descriptions, and six were neutral (for buffer and probability purposes). Subjects were asked to imagine that they had to recommend to their superintendents six teachers of the 18 to be hired by the board of education.

Experience with HT-I had shown that it imposed a very difficult burden on the subjects. They had to read, evaluate, and choose from among 18 capsule descriptions of teachers. The necessity of a shorter instrument was evident. But how could we shorten the scale without sacrificing the probability levels (see below) thought necessary? To solve this problem, we calculated all the probabilities of _k_ things taken _m_ at a time using the hypergeometric distribution (Hays, 1963, pp. 155-156). We did this by letting _k_ vary form 11 to 20 and _m_ from _x_ to _y_, _x_ and _y_ depending, of course, on _k_.

Our goal was an instrument with as few items and as few choices as possible commensurate with adequate probability levels. We finally chose _k_ = 14 and _m_ = 5, or 14 things taken five at a time. Among the 14 items, we had six _A_, six _B_, and two buffers ("neutral" descriptions).

Hiring Teachers III, or HT-III, was constructed from the factor analytic results of the _Q_ study _and_ the results of the factor analyses of TC-I. HT-I was used before the results with TC-I had been analyzed. After the TC-I results were available, we tried to improve the sets of adjectives by using only those highly loaded on the TC-I factors. Shorter descriptions were also used: the degrees, degree-granting institutions, sex, and marital status of HT-I were omitted from the descriptions.

A subject's score on HT-I or HT-III was defined probabilistically and depended, too, on his attitude scores. The ES attitude scores were dichotomized at the medians of the attitude _A_ and _B_ scores, and subjects with scores above the medians were called Highs and those with scores below the medians were called Lows. We scored the subjects on HT only in relation to their scores on the ES measures, in other words. The exact probability of a subject choosing four, or five, or all six _A_ (or _B_) HT-I descriptions by chance--calculated from 18 things (_k_) taken six at a time (_m_)--was .057. (The probability of choosing all six was .000054, and the probability of choosing five or six was .004.) If an _A_-attitude subject, then, chose four, five, or six _A_ HT items (teachers to hire), this was a "hit"--and similarly for a _B_-attitude subject.

With HT-III a subject had to choose, from the 14 descriptions, four or five _A_ or _B_ descriptions to obtain a hit. The probability of choosing four or five by chance was .063. (The probability of all five was .003.) A "hit" was assigned 1; a "no-hit" was assigned zero. The statistics used with HT-I and HT-III will be described in Chapter VII.

Unfortunately, we knew no way to test the reliabilities of HT-I and HT-III. The unusual nature of the scales seemed to proscribe any of the usual methods. Factor analysis, too, seemed proscribed. We were forced, therefore, to judge the instruments by the consistency of the results obtained with them and by the factor analytic nature of their construction. Despite these limitations, both HT-I and HT-III seemed to be adequate instruments, especially when the difficulty of the tasks facing the subjects is considered. (Copies of HT-I and HT-III are included in the Appendix.)

Addendum

The original proposal for this research included plans for constructing two pair-comparisons scales to measure perceptions of desirable teacher characteristics. These scales were constructed but were not too successful (though not unsuccessful). Because early results did not look as promising as the results obtained with summated-rating scales, these instruments were dropped. Nevertheless, we feel that this report should contain the results of the work done with the two-pair comparisons scales we constructed and briefly used.

The first scale, Teacher Characteristics Scale II (TC-II), used the simple but evidently unused notion of combining items of different factors. That is, each item of TC-II had two adjectives, one an *A* adjective and the other a *B* adjective. There were 10 *A* adjectives and 10 *B* adjectives which were paired in all possible pairs. They were chosen from the high positive ends of the *Q* factor arrays. Subjects were required to choose that member from each pair that they thought more important for teachers to have. Each subject had two scores: the number of *A* adjectives he chose and the number of *B* adjectives he chose. (The *A* and *B* scores, of course, were not independent of each other.) The purpose of constructing TC-II was to provide another TC measure. It was not, of course, used for scaling purposes. Since it did not work too well, perhaps because of its length, 100 items, and its rather repetitive nature, we do not discuss technical details further.

Teacher Characteristics Scale V (TC-V) was constructed to test a prediction made in the original study plan. It was predicted that the judges with *A* attitudes would be able to scale *A* adjectives but not *B* adjectives, and that judges with *B* attitudes would be able to scale *B* adjectives but not *A* adjectives. (See Sherif and Hovland, 1961.) That is, the *A* items should form a unidimensional scale when judged by *A* judges, but not when judged by *B* judges, and vice versa for *B* items. Although the predictions were not supported--the *A* and *B* subsets of items were scalable whether *A* judges or *B* judges scaled them--the results are interesting, especially for future research.

Six adjectives high on the *Q* study *A* factor array and six adjectives high on the *B* factor array were paired in all possible comparisons, making a total of 66 items. The *A* adjectives were scaled separately, the B adjectives were scaled separately, and all 12 adjectives were scaled by 40 high A-attitude subjects and by 40 high B-attitude subjects using the method of pair-comparisons (Edwards, 1957, Ch. 2). Each of the scaling operations was tested for significance using the χ^2 test outlined by Edwards (ibid., Ch. 3). If χ^2 is not significant, then we can say that the items are scalable. If χ^2 is significant, then one or more assumptions behind the scaling procedure are violated and the items are presumably "not scalable" (by the judges).

Almost all the sets of items, A, B, and combined A and B, were scalable: none of the χ^2's were significant except that obtained when A-attitude judges judged A adjectives alone. The rank orders of the item scale values, moreover, were quite similar. Rank-order correlations between the scale values obtained by A and B judges were as follows (significance levels are given in parentheses):

judging A adjectives: .80 (.05)
judging B adjectives: .93 (.01)
judging A and B adjectives: .86 (.01)

The predictions were clearly not confirmed.

Some readers may find the scale values of the adjective-traits interesting. We give them in Table VI-6. While we did not believe too strongly in our predictions--the original research plan actually said that this test of the hypothesis may be too severe--we certainly did not anticipate these results. For example, the non-significant χ^2's and the substantial rho (.86) for both attitude A and B judges judging all the adjectives (first two columns of scale values in Table VI-6) seem to indicate that the A and B adjectives are scalable even when taken together. But they should not be since we have already shown that the adjectives belong to two different factors. Our tentative explanations, at least at present, are the positive correlation between the A and B factors and a characteristic of the paired comparisons method that Sherif and Hovland discuss. Since we have already discussed the effects of positive correlations among factors and the variance summation principle in Chapter V, we do not do so here. On the characteristics of the paired comparisons method that may have operated to partially nullify the effect of attitude on judgment with TC-II and TC-V, Sherif and Hovland (1961, p. 93) say, "The margin for systematic displacements is minimal when each of a series of objects . . . is presented for comparison with another object."

Three other teacher trait perception instruments were

Table VI-6

Pair-Comparisons Scale Values of A, B, and Combined A and B Adjectives as Judged by Attitude A and B Judges

Adjectives	A-All[a]	B-All	A-A[b]	B-A	A-B	B-B	Type[c]
Considerate	.91	.79	.77	.85			A
Reliable	.79	.75			.93	.81	B
Thoughtful	.70	.43	.63	.45			A
Warm	.66	.21	.45	.03			A
Conscientious	.61	.54			.81	.70	B
Sympathetic	.43	.25	.31	.20			A
Sensitive	.42	.19	.24	.11			A
Efficient	.32	.34			.47	.37	B
Thorough	.32	.17			.45	.26	B
Friendly	.29	.07	.00	.00			A
Moral	.29	.20			.52	.35	B
Firm	.00	.00			.00	.00	B

[a] The first letter of each pair means "Judge"; the second letter or word means adjective set judged. N = 93 for the first two columns of scale values; N = 40 for the rest of the columns.

[b] χ significant at the .05 level. For all other sets χ^2 is not significant.

[c] Type: TC factor type.

conceived, written, and tested. Since preliminary results obtained with them were not promising, we abandoned them. They are summarized briefly here because they throw light on the instruments that were more successful and emphasize the importance of conventional psychometric criteria and principles.

TC-VII had the same 22 adjective items as TC-VIII and the same type of task as HT-I and HT-III. The subjects were asked to choose nine of the 22 adjectives that would constitute their conceptions of the "good teacher." It was scored in the "hit" and "no-hit" fashion of HT-I and HT-III.

TC-VI was entirely different. Four educational positions, Teacher, Principal, Superintendent, and Professor, were given the subject. He was asked to list the traits that the generally successful occupant of the position possesses. A list of possible traits was also provided, but the subject was told that he was not limited to them. We intended counting _A_ and _B_ traits for the position Teacher as a scoring method. The results were so irregular, however, that they were not usable.

HT-II was a short version of HT-I: it had seven teacher descriptions or items, two _A_, two _B_, and three buffer (neutral) items. The subject was required to select two teachers from the seven. We had thought that this short form would escape the task difficulty of HT-I. Unfortunately, it did not work. The main trouble seemed to be that there were too few items. To obtain a "hit" a subject had to choose _both_ target descriptions, _A_ or _B_, from among the seven descriptions. The instrument gave too little opportunity for non-chance factors to overcome chance factors, in other words.

While the ideas for these instruments intrigued us, we learned a valuable lesson: the researcher must be very cautious about giving up or bending too far conventional psychometric principles and strictures. Number of items, intrinsic interest of items and the total task, and carefully prepared and clear instructions are necessary if not sufficient conditions of good measurement instruments.

Chapter VII

Studies II, III, and IV: Cross-Sectional Approaches[1]

In chapter IV the basic problem of the study--What are the relations between attitudes toward education and perceptions of desirable traits of teachers?--was attacked using Q methodology. Hypotheses 1 and 3 (see Chapter II) were tested and supported by the Q data. Judges with progressive and traditional educational attitudes chose teacher traits congruent with their attitudes (Hypothesis 3), and there were three persons factors behind perceptions of the effective teacher.

Two other problems of the study are expressed by the questions: What are the factors behind attitudes toward education? and What are the factors behind perceptions of desirable teacher characteristics? These questions were answered in Chapters V and VI. In both cases it was found that two "large," or second-order, factors seemed to underlie the attitude items and the perception items of the scales used. The evidence, then, supported Hypotheses 2 and 4.

We now turn to extensive cross-sectional tests of the basic problem and hypothesis of the study. Hypothesis 3 states that judges with progressive attitudes toward education will choose traits congruent with progressive educational opinions and beliefs, and judges with traditional attitudes toward education will choose traits congruent with traditional opinions and beliefs. We tested this hypothesis in four related substudies--henceforth called Studies I, II, III, and IV--using a variety of measures of attitudes toward education and perceptions of desirable teacher characteristics. The development of the most important and useful measures was described in Chapters IV, V, and VI.[2] We therefore describe them and certain other measures only briefly in this chapter.

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[1] Some of the discussions and tabled statistics of Chapters V and VI will be repeated in this chapter for clarity and completeness of presentation.

[2] There were two exceptions: QED, a Q sort to measure educational attitudes, and ES-I (Education Scale I), a 20-item summated-rating educational attitude scale. Both had been developed in previous research (Kerlinger, 1956; Kerlinger and Kaya, 1959a).

Study I was the Q study mentioned above and described in detail in Chapter IV. Studies II, III, and IV used a cross-sectional approach: large numbers of subjects in different parts of the United States were administered the attitude and perception measures and, for the most part, the resulting data were analyzed with correlation techniques, including factor analysis, and a mixture of exact probability and chi square procedures. In all cases, we juxtapose educational attitude measures against desirable teacher characteristic measures.

The attitude measures were all of the summated-rating (Likert) kind. While it might have been desirable to have used other types of attitude measures, e.g., forced-choice, previous research and our factor analytic purposes made us use only summated ratings. The perception measures consisted of summated ratings, paired comparisons, and what can be called "choice" or "situational" instruments. As indicated in Chapter VI, however, not all of these were successful. Nor did we expect all of them to be successful. We tried, in other words, different methods in order to determine the best methods for our purposes. These "best" methods turned out to be the summated-rating scales and the situational instruments. We report mainly the data gathered with these measures.

The samples and the instruments used in the four studies are outlined in Table VII-1. The table will help the reader grasp the scale names and the samples in the context of the four studies. A basic procedural principle we followed was that everything we did had to be replicated, preferably in different places. It can be seen that the samples were widely distributed: they consisted of teachers and graduate students of education from New York, North Carolina, Texas, Wisconsin, Indiana, and Michigan. Another procedural principle that governed our data collection was that samples should be large. This was mainly for factor analytic purposes that will be discussed later. The sample N's are given in the table.

It will be useful to bear our scale symbols in mind. ES means Education Scale. It is the designation used for the three educational attitude scales used in the study: ES-I, ES-VI, and ES-VII.[3] TC means Teacher Characteristics. HT means Hiring Teachers. TC measures were summated-rating scales; HT measures were situational TC instruments. Of the eight measures constructed to explore perceptions of teacher characteristics, four were "successful" and are listed in Table VII-1: TC-I, TC-VIII, HT-I, and HT-III.

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[3] ES-II, ES-III, ES-IV, and ES-V were constructed for and used in other research (Kerlinger, 1961).

Table VII-1

Study Designations, Samples, and Educational Attitude and Teacher Trait Perception Instruments Used[a]

Study	Samples	Instruments
I	N.Y., N = 36	QED; TCQ[b]
II	N.Y., N = 142 N.Y., N = 132 N.Y., N = 102	ES-I; TC-I; HT-I[c]
III	N.Y., N = 344 N.C., N = 404 Tex., N = 556 Wisc., N = 218	ES-VI; TC-I
IV	L.I., N = 298 Ind., N = 322 Mich., N = 400 N.C., N = 428 N.Y., N = 257	ES-VII; TC-VIII; HT-III

[a] See text for descriptions of studies, samples, and instruments.

[b] QED: Education Q sort; TCQ: Teacher Characteristics Q sort. These Q sorts were described in Chapter IV.

[c] ES-I: Education Scale I (and similarly with ES-VI and ES-VII); TC-I: Teacher Characteristics Scale I (and similarly with TC-VIII); HT-I: Hiring Teachers I (and similarly with HT-III). These instruments were the basic ones used. With some samples, however, other instruments were used for auxiliary purposes discussed in Chapter IX.

Study II

In Study II, ES-I, TC-I, HT-I, and two other scales were administered to two samples: 142 graduate students of education and 234 teachers of a supervisory district of New York State.[4] The latter sample consisted of two randomly divided subsamples of 132 and 102 teachers. ES-I was administered to all 376 teachers. The means, standard deviations, and r's between the A (progressivism) and B (traditionalism) measures of ES-I are reported in the upper part of Table VII-2.[5] It will be recalled from Chapter V that ES-I is a 20-item summated-rating scale with 10 A (progressivism) and 10 B (traditionalism) items. The A means and the A and B standard deviations are much like those of earlier samples. The B means, however, are considerably higher than those of earlier samples: about half a standard deviation. This may be due to a difference in the samples--teachers in the present sample and graduate students of education in earlier samples--or to a possible change in attitudes due to recent changes in the national educational atmosphere. The correlations between A and B are negative and low, as expected.

The companion data for TC-I are reported in the first two lines of Table VII-3. TC-I, as noted in Chapter VI, was a 38-item, seven-point, summated-rating scale consisting of 14 A items, 14 B items, and 10 neutral buffer items. A subject's scores were the averages of his ratings on A and B. TC-I was administered to the N = 142 sample, the N = 132 sample, but not to the N = 102 sample.

The main things to note about these TC statistics are the near equality of the A and B means, the positive correlations between the A and B subscales, and the substantial reliabilities of both subscales. The near equality of means seems to indicate

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[4] The authors are grateful to Dr. Bernard Bryan, District Superintendent, Second Supervisory District, New York State, Mr. Martin O'Neill, Dr. Bryan's Research Associate, and the then principal, Mr. Calvin Sloan, and teachers, especially Mrs. Frances Bennett, of the Highview School, U.F.D. No. 7, Hartsdale, N.Y., for assisting us to administer the scales during a district conference of teachers.

[5] The ES reliabilities of the separate New York samples were not calculated because some of the original data were lost in an office move. The reliabilities of the combined samples, N = 132 + 102 = 234, however, were calculated by the odd-even method. The coefficients were .71 for both A and B.

Table VII-2

Means, Standard Deviations, Reliability Coefficients, and Correlations Between Factors: ES-I, ES-VI, and ES-VII, All Samples[a]

	A				B			
	N	M	s	r_{tt}[b]	M	s	r_{tt}[b]	r_{AB}
ES-I:								
N.Y.	142	5.36	.85		4.29	.95		-.19
N.Y.	132	5.43	.75		4.27	.86		-.20
N.Y.	102	5.27	.75		4.67	.88		-.18
ES-VI:								
N.Y.	344	5.51	.71	.85	4.14	.85	.86	-.30
N.C.	404	5.51	.54	.80	4.19	.74	.83	-.27
Tex.	556	5.25	.67	.83	4.43	.74	.82	-.18
Wisc.	218	5.46	.55	.78	4.04	.74	.83	-.33
ES-VII:								
L.I.	298	5.54	.69	.79	4.34	.85	.78	-.15
Ind.	322	5.51	.60	.76	4.24	.65	.69	.02
Mich.	400	5.79	.61	.80	3.93	.73	.76	-.20
N.C.	428	5.61	.59	.71	4.03	.87	.82	-.20
N.Y.	257	5.75	.61	.76	3.74	.73	.73	-.19

[a] See text for descriptions of samples.

[b] r_{tt}: alpha reliability coefficients. Reliabilities of ES-I were not calculated for the separate New York samples. But see Footnote 5.

Table VII-3

Means, Standard Deviations, Reliability Coefficients, and Correlations Between Factors: TC-I and TC-VIII, All Samples[a]

	A				B			
	N	M	s	r_{tt}[b]	M	s	r_{tt}[b]	r_{AB}
TC-I:								
N.Y.	142	5.34	.76		5.46	.83		.27
N.Y.	132	5.69	.71	.84	5.37	.74	.80	.44
N.Y.	313	5.53	.72	.82	5.12	.82	.83	.40
N.C.	404	5.28	.69	.80	5.45	.68	.80	.51
Tex.	480	5.21	.74	.83	5.59	.69	.80	.61
Wisc.	218	5.26	.68	.77	5.15	.70	.77	.34
TC-VIII:								
L.I.	298	5.07	.87	.80	5.22	.84	.82	.33
Ind.	159	4.94	.72	.69	5.16	.77	.77	.23
Mich.	400	5.26	.74	.71	4.76	.84	.79	.21
N.C.	428	5.15	.72	.72	5.41	.78	.82	.32
N.Y.	257	5.38	.74	.74	4.74	.85	.78	.22

[a] See text for descriptions of samples.

[b] r_{tt}: alpha reliability coefficients. The coefficient for the N = 132 sample is an odd-even one.

that the A and B dimensions are on the average both favored rather highly: about 5.5 on a seven-point scale. This is perhaps due to the favorable nature of the adjectives--friendly, warm, sympathetic and reliable, conscientious, efficient, for example. This is also reflected in the positive correlations between the two dimensions. The substantial reliabilities of both subscales were not anticipated. If anything, we anticipated considerably lower reliabilities because of the nature of the individual items, single adjectives whose meanings and use in ordinary discourse are not always too precise. A glance at the third, fourth, fifth, and sixth data lines of the table show that the statistical characteristics just discussed persist in other samples.

Results

Coefficients of correlation were calculated between ESA and TCA, ESB and TCB, ESA and TCB, and ESB and TCA for the N = 142 and N = 132 samples. These r's are reported in Table VII-4. The hypothesized relations are underlined: A to A is .29, and B to B is .43 for the N = 142 sample and .24 and .30 for the N = 132 sample. The four r's are significant at the .01 level, except the A-A r of .24, which falls just short of the .01 level (two-tailed test).[6] The cross-dimension r's, A-B and B-A, are -.10, not significant, and -.21, significant, for the N = 142 sample, and -.23, significant, and -.14, not significant, for the N = 132 sample. We expected all cross-dimension r's to hover around zero or to be negative and low.

The hypothesis is supported, though certainly not dramatically. We thought that the A-A and B-B r's would be about .40, or at least .30. As we shall see later with other samples, some of the r's were about .40, some were in the .30's, but many were also in the .20's. In almost all cases the predicted r's were statistically significant. High r's were of course not expected. Perceptions and judgments of teacher characteristics, like all interactional events and processes, have multiple determinants. Attitude is only one such determinant, though an important one.

The analysis of the relations between the ES measures and the responses to the HT (Hiring Teachers) measures is complex. In Chapter VI HT-I was described as a situational instrument constructed to measure perceptions of teacher characteristics. Of its 18 "items," six were A descriptions that contained ad-

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[6] The .01 level of significance is used throughout this report, except where otherwise noted.

Table VII-4

Correlations Between ES-I and TC-I Measures,
New York Samples[a]

	New York, *N* = 142		New York, *N* = 132	
	TC-I *A*	TC-I *B*	TC-I *A*	TC-I *B*
ES-I *A*	.29	-.10	.24	-.23
ES-I *B*	-.21	.43	-.14	.30

[a] *r*'s pertinent to the hypothesis are underlined. *r* = .23, significant at the .01 level.

jectives like sympathetic, flexible, kind, and friendly, six were B descriptions with adjectives like dependable, thorough, reliable, and conscientious, and six contained "neutral" adjectives (for buffer purposes). Each subject was asked, in effect, to play the role of a teacher who had to recommend to his superintendent six of the teachers to be hired. (See Chapter VI for a more detailed description. Copies of HT-I and HT-III, the successor to HT-I, can be found in the Appendix.)

In order to test the attitude-perception hypothesis using HT-I, it will also be recalled, we dichotomized the attitude A and B scores at the medians and called the subjects above the medians Highs and those below the medians Lows. In other words, each subject was assigned "scores" on HT-I only in relation to his scores on ES-I. If a subject was a High on ES-I A, for example, we asked whether he had also obtained a "hit" on HT-I. A "hit" was defined by whether the subject had selected four, five, or six of the A descriptions of HT-I. Similarly, we asked whether a subject who was a High on ES-I B selected four, five, or six of the HT-I B descriptions. The exact probability of a subject choosing four, or five, or six A (or B) descriptions by chance was .057.[7] If an A-attitude individual (high on A), then, chose four, or five, or six A descriptions, we called this a "hit"--and similarly for a B-attitude individual.[8]

To test the attitude-perception hypothesis over a whole sample, we counted the number of "hits" and "no hits" on HT-I for High *A*'s and Low *A*'s, and then calculated chi squares based on the exact probability expectations just mentioned. The same was done for High *B*'s and Low *B*'s. For example, in a sample of 100 subjects we would expect six "hits" on *A* and 94 "no hits" (p = .057 x 100 = 5.7; q = 1 - p = 1 - .057 = .943, and .943 x 100 = 94). Instead of chi square equal probability expectations, in other words, we used the exact probabilities.

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[7] This was calculated from 18 things taken six at a time using the hypergeometric distribution (Hays, 1963, pp. 155-156). The probability of choosing all six descriptions (A or B) was .000054, and the probability of choosing five or six was .004.

[8] This procedure has a questionable and troublesome aspect that we could not seem to overcome. An individual could be high on both attitude-A and attitude-B. It would have been desirable to categorize each subject as an A, a B, or neither. Unfortunately, we could find no adequate way to do this. In testing the hypothesis, however, we conceived the A and B attitude dimensions as different and independent, and consequently the A-A and B-B comparisons as independent. This procedure was perhaps justified because no individual could obtain a "hit" on both A and B of HT-I. In other words, although a subject could be high on attitude-A and attitude-B, he could not at the same time obtain a "hit" on both A and B of HT-I. We hope ultimately to devise some better method along the lines of multiple regression.

The results of these tests are reported in Tables VII-5, VII-6, and VII-7 for the three New York samples of N = 142, N = 132, and N = 102. To help clarify the analysis we explain the N = 142 sample in detail using round numbers. The expected number of hits by chance among the ESA Highs is 4. Similarly the expected number of hits by chance among the Lows is also 4. The expected number of no-hits is of course 67.[9] χ^2 is 252.795, significant well beyond the .001 level.

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[9] If we set up a contingency table like that of Table VII-5 but with the marginal probabilities, and then calculate the cell probabilities and expectations, the method becomes clearer. Here is the table:

	Hit	No-Hit	
Hi *A*	.50 x .057 = .0285	.50 x .943 = .4715	.50
Lo *A*	.50 x .057 = .0285	.50 x .943 = .4715	.50
	.057	.943	

The probability of a high *A* is of course .50, and similarly for a low *A*, since we dichotomized the sample. The probability of a hit, disregarding high and low *A*, is .057; the probability of a no-hit is .943. The joint probability of a high *A* and a hit is .057 x .50 = .0285, and similarly for a low *A* and a hit. The probability of a high *A* and a no-hit is .943 x .50 = .4715, and similarly for a low *A* and a no-hit. The total N of 142 is then simply multiplied by the four cell probabilities to obtain the expected frequencies, which are: .0285 x 142 = 4.047 and .4715 x 142 = 66.953, or, in round numbers, 4 and 67. These figures are then used to calculate chi square in the usual manner, but with a correction for continuity. It may be wondered: Why bother with the low *A*'s?

Study of the three tables shows two things. One, the hypothesis is supported: with the exception of the ES-B - HT-B part of Table VII-7 (significant at the .05 level), the χ^2's are significant at the .01 and .001 levels. In each case, it can be seen that the larger shares of the χ^2's are contributed by the High-Hit combination. Two, it is also clear that the A adjective descriptions are more attractive than the B adjective descriptions. This is shown by the column sums of the frequencies in the A and B tables. In each case the Hit column proportion is greater in the A table than it is in the B table. In Table VII-5 the A column frequencies of Hit and No-Hit are 52 and 90, while the B frequencies are 33 and 109. The proportions are .37 and .63 for A and .23 and .77 for B. The proportions in Table VII-6 are .39 and .61 for A and .09 and .91 for B. The proportions in Table VII-7 are .42 and .58 for A and .10 and .90 for B. Clearly the A descriptions have much stronger "pull" than the B descriptions, a fact that did not surprise us in view of the obvious social desirability of the A adjective descriptions vis à vis the B adjective descriptions--sympathetic, warm, friendly, and flexible, for example, versus industrious, reliable, efficient, and firm. Despite this, the relation between attitude and perception is as predicted.

Another way to see the predicted relations is to calculate the proportions of the Hits and the No-Hits to the total numbers in the High and Low groups. These proportions are given in parentheses in the tables. Among the High attitude A's of Table VII-5, for instance, there were 31 Hits and 40 No-Hits. The proportions are 31/71 = .44 and 40/71 = .56. Among the Low attitude A's, on the other hand, the proportions are .30 and .70. The differences between the proportions on the B side of Table VII-5 are more pronounced: .35 and .65 versus .11 and .89. If we subtract the Low Hits from the High Hits we have a crude index of the strength of the association. Call this index IA (Index of Association). Thus, in Table VII-5, IA is .14 for A and .24 for B. In Table VII-6 the IA's

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The reason is that we are interested in the relation between attitude and perception, and not just in the number of hits. If, for example, the low A got about the same number of hits as the high A's and the chi square is significant, then we can infer that something other than attitude is making the number of HT hits depart from chance. In short, both levels of both variables have to be taken into account. (The expected chance frequencies are given in the footnotes of the three tables.)

Table VII-5

ES-I and HT-I: $\underline{\chi}^2$ Analyses, New York Sample, $\underline{N} = 142$

A

	Hit[a]	No-Hit
ESA-Hi	31 (.44)	40 (.56)
ESA-Lo	21 (.30)	50 (.70)

$\underline{\chi}^2 = 252.795$ (.001)

B

	Hit	No-Hit
ESB-Hi	25 (.35)	46 (.65)
ESB-Lo	8 (.11)	63 (.89)

$\underline{\chi}^2 = 112.028$ (.001)

---

[a] Chance expectation in high or low group (rounded): Hit = 4; No-Hit = 67.

Table VII-6

ES-I and HT-I: χ^2 Analyses, New York Sample, N = 132

A

	Hit[a]	No-Hit
ESA-Hi	37 (.56)	29 (.44)
ESA-Lo	15 (.23)	51 (.77)

χ^2 = 332.772 (.001)

B

	Hit	No-Hit
ESB-Hi	10 (.15)	56 (.85)
ESB-Lo	2 (.03)	64 (.97)

χ^2 = 9.645 (.01)

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[a] Chance expectation in high or low group: Hit = 4; No-Hit = 62.

Table VII-7

ES-I and HT-I: $\underline{\chi}^2$ Analyses, New York Sample, *N* = 102

A

	Hit[a]	No-Hit
ESA-Hi	28 (.55)	23 (.45)
ESA-Lo	15 (.29)	36 (.71)

$\underline{\chi}^2$ = 268.159 (.001)

B

	Hit	No-Hit
ESB-Hi	7 (.14)	44 (.86)
ESB-Lo	3 (.06)	48 (.94)

$\underline{\chi}^2$ = 4.71 (.05)

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[a] Chance expectation in high and low groups: Hit = 3; No-Hit = 48.

are .33 and .12, and in Table VII-7, they are .26 and .08.[10]

The data of Study II, then, support the hypothesis, if not dramatically, as we said before. Educational progressivism is accompanied by a tendency to choose characteristics of teachers that are person-oriented, and educational traditionalism by a tendency to choose teacher characteristics that are task-oriented.

Study III

Study II and Study III were similar in their general approach. The main differences between them were a new and enlarged scale to measure the independent variable, attitudes toward education, and large samples from different parts of the United States. (Another difference that does not concern us here is that a major purpose of Study III was to gather large sets of data to study the factor structure and content of the ES and TC measures.)

The new instrument, Education Scale VI (ES-VI), constructed at this stage of the research to measure attitudes toward education, was a 46-item, seven-point, summated-rating scale. Its items were selected from a pool of some 100 items used in previous research (Kerlinger, 1956; 1958; 1961; Kerlinger and Kaya, 1959a, 1959b; Smith, 1963). The criteria of item selection and technical details of the scale were discussed in Chapter V.

The instrument used to measure perceptions of desirable traits of teachers in Study III was TC-I. It was described above and in Chapter VI. Hiring Teachers (HT-I) was not used in Study III. In short, one of the main purposes of Study III was to replicate with large samples in different parts of the country the correlational data and results obtained in Study II. (The other main purposes were discussed in Chapters V and VI.)

ES-VI and TC-I were administered to four samples of teachers and graduate students of education in New York ($\underline{N}$ = 344), North Carolina ($\underline{N}$ = 404), Texas ($\underline{N}$ = 556), and Wisconsin ($\underline{N}$ =

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[10] The reader should bear in mind the complexity and difficulty of the task that faced the subject: to choose six rather complex descriptions from among 18 such descriptions. Another point to remember is the very low probability of obtaining four, five, or six hits by chance.

218).[11] The basic statistics obtained with these samples are reported in Tables VII-2 (fourth through seventh lines of data) and VII-3 (third, fourth, and fifth lines of data). It can be seen that the means and standard deviations are similar to those obtained with ES-I and TC-I in Study II, except that the ESA mean of the Texas sample is about a third of a standard deviation lower and the ESB Texas mean about one quarter of a standard deviation higher than the other sample means.

The ES-VI internal consistency (alpha coefficients) reliabilities are substantial--about .80 or higher. One of the purposes in constructing ES-VI was to obtain higher reliabilities than had been obtained with ES-I (in the .70's: see Kerlinger and Kaya, 1959b). The TC-I internal consistency reliabilities, too, are substantial--.80 or higher. Although we planned to administer ES-VI and TC-I (and later, ES-VII and TC-VIII) to two or three samples twice in order to be able to calculate repeat reliabilities, we were not very successful due to inability to administer the scales a second time and to other difficulties. Nevertheless, we did obtain repeat estimates from one separate sample in New York of 51 graduate students of education.[12] The ES-VI repeat reliabilities were: $\underline{A} = .90$ and $\underline{B} = .72$. The TC-I repeat reliabilities were: $\underline{A} = .62$ and $\underline{B} = .71$. These coefficients are satisfactory, except for TCA. On the basis of data from only one sample we hesitate to try to explain these estimates and to compare them to the internal consistency estimates.

The correlations between the $\underline{A}$ and $\underline{B}$ dimensions of both scales are opposite in sign: the ESA and ESB correlations are low and negative; the TCA and TCB correlations are moderate and positive. The import of these $\underline{r}$'s was discussed in Chapters V and VI and need not be discussed here. In Study III, then, we have two instruments of substantial internal consistency reliability, satisfactory repeat reliability, and apparent factorial validity. We also have large samples obtained in different parts of the country. If the correlations obtained with these samples and instruments are similar to those obtained with the samples and instruments of Study II, we can, other things equal, have considerably more faith in the findings.

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[11] The scales were administered in North Carolina, Texas, and Wisconsin by Professors Roy Sommerfeld, Gerald Kowitz, and Thomas Linton. We wish to thank these men for their assistance.

[12] We are indebted to Dr. Joseph Reswick for obtaining these data for us.

Results

The findings are reported in Table VII-8, which, like Table VII-4, reports the correlations between the ESA and ESB measures, on the one hand, and the TCA and TCB measures, on the other hand. The hypothesized correlations are underlined. All of them are in the predicted direction and significant at the .01 level. Like the *r*'s of Table VII-4, however, they are relatively modest, ranging from .23 to .44. In contrast, the cross-dimension *r*'s are mostly quite low and not significant. Only two of the eight *r*'s are significant: New York, ESB-TCA, and Wisconsin, ESB-TCA. The hypothesis is supported. The results are consistent with those of Study II and with each other.

Study IV

New attitude and trait perception instruments were constructed for Study IV on the basis of factor analyses and item analyses. All together six instruments were constructed: one educational attitude scale, ES-VII; three teacher characteristics scales, TC-VI, TC-VII, and TC-VIII; and two situation trait perception instruments, HT-II and HT-III. Three of these instruments, ES-VII, TC-VIII, and HT-III, were found to be "successful" in early tryouts; the others, TC-VI, TC-VII, and HT-II, were either not "successful" or of dubious psychometric values. Only ES-VII, TC-VIII, and HT-III were used in Study IV. Their construction and characteristics were described in Chapters V and VI. Thus we only categorize them briefly here.

The goals of the scale construction were factorial "purity" of the *A* and *B* dimensions of both the educational attitude and the teacher trait perception scales, adequate reliability, brevity, and adequate coverage of the attitude and trait domains. To achieve factorial "purity," the items that in the factor analyses of the New York, North Carolina, and Texas data had consistently high loadings and at the same time substantial item-total correlations in the item analyses were put into small pools of ES and TC items. From these pools the *A* and *B* items of ES-VII, TC-VIII, and HT-III were selected. As indicated in Chapter V, ES-VII had 30 items, 15 *A* (progressivism) and 15 *B* (traditionalism). TC-VIII (see Chapter VI) was assigned 22 items, 11 *A* (Person-Orientation) and 11 *B* (Task-Orientation). Both were seven-point summated-rating scales.

The scales were administered, together with other scales to be described later, to samples of teachers and graduate students of education in New York, Indiana, Michigan, and

Table VII-8

Correlations Between ES-VI and TC-I Measures, New York, North Carolina, Texas, and Wisconsin Samples[a]

	N.Y., *N* = 103		N.C., *N* = 404	
	TCA	TCB	TCA	TCB
ESA	.*30*	-.10	.*23*	-.03
ESB	-.25	.*44*	.04	.*39*
	Tex., *N* = 480		Wisc., *N* = 218	
	TCA	TCB	TCA	TCB
ESA	.*30*	.02	.*27*	.00
ESB	-.04	.*24*	-.19	.*35*

[a] *r*'s pertinent to the hypothesis are underlined. *r*'s significant at .01: *N* = 100, *r* = .25; *N* = 200, *r* = .18; *N* = 400, *r* = .13.

North Carolina.[13] The samples, with their respective N's, are given in Table VII-1. The basic statistics of ES-VII are reported in the last five data lines of Table VII-2. Those of TC-VIII are reported in the last five data lines of Table VII-3.

Study of these data shows that ES-VII and TC-VIII are quite similar to their longer predecessors. The means and standard deviations are approximately the same, except that the ES-VII B means of one sample, New York (N = 257), is appreciably lower than previous means, and two of the TC-VIII B means, Michigan (N = 400) and New York (N = 257), are lower than any of their predecessors.

The internal consistency (alpha coefficient) reliabilities of ES-VII range from .71 to .80 on A and .69 to .82 on B, with medians of .76. It was hoped that the careful selection of items would give consistent reliabilities of about .80, as those of ES-VI did. In other words, while satisfactory for the research purposes of this study, the reliabilities of ES-VII could be better.

The internal consistency reliabilities of TC-VIII are also satisfactory, especially when the small numbers of items (11 for each dimension) are taken into account. Here, however, the B reliabilities are higher than the A: the B range is from .77 to .82, with a median of .79; the A range is from .69 to .80, with a median of .72. In sum, the reliabilities of the A and B subscales of both scales were satisfactory, if not as high as expected.

The correlations between the A and B subscales of ES-VII are negative, low, and similar to those of ES-I and ES-VI, though a bit lower. Those between A and B of TC-VIII are positive but consistently lower than those between A and B of TC-I.

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[13] The data of the North Carolina sample, N = 428, actually consisted of three subsamples whose instructions on TC-VIII were different. One group was told to judge elementary teachers, the second high school teachers, and the third received the usual instructions. We will come to the analysis of these experimental data in Chapter IX. We wanted to treat the whole sample as one in certain analyses. The question was whether the three subsamples differed to the extent of preventing such treatment. Analyses of variance of the TCA and TCB measures (and also the ESA and ESB measures) showed that the means of the samples did not differ significantly. Moreover, factor analyses of these data showed the factors obtained were evidently not affected (see Chapter VIII). We therefore used these data as though the instructions to the subsamples had not differed.

Hiring Teachers III (HT-III), the situational instrument used in Study IV, was based on the results obtained with HT-I and the factor analyses of TC-I done after HT-I had been constructed. A number of the TC items that had high loadings on the rotated factors were used to form the adjectival descriptions of HT-III. It had been decided by a method described in Chapter VI that 14 items, or descriptions, would be used and that the items would be simplified. Instead of the 18 items and the details of age, marital status, degrees, years of teaching experience, recommendations, and the six adjectives of HT-I, only age, years of teaching experience, recommendations, and five adjectives were used. There were six A items, six B items, and two neutral, or buffer, items. Here are one A item and one B item.

6. Ruth Jackson. Age 28. Has five years of teaching experience, all satisfactory. Comes well recommended. Reliable sources describe her as humorous, warm, agreeable, enthusiastic, and cheerful. (A item)

9. Ellen Harding. Age 29. Has had six years teaching experience. This experience has been satisfactory, and her recommendations are good. Has been reliably described as conscientious, efficient, punctual, reliable, and sensible. (B item)

Subjects were required to choose five of the 14 teachers. If a subject was above the educational attitude A median (or B median), he had to choose four or five A descriptions (or B descriptions) to obtain a "hit." The probability of a hit was .063. To test the hypothesis over all the subjects of a given sample, chi square tests were used in the same way they were used in Study II, except that the probabilities used in the calculations were of course different. HT-III, then, had fewer and presumably better (factorially more valid) items and simpler descriptions than HT-I. As we will see, however, the results were about the same. (Copies of HT-I and HT-III will be found in the Appendix.)

Results

The findings of Study IV are reported in the same manner as in Studies II and III. First, the correlations between the ES and TC measures for four of the five samples are given in Table VII-9. As usual, the hypothesized correlations are

Table VII-9

Correlations Between ES-VII and TC-VIII Measures, Long Island, Indiana, Michigan, and North Carolina Samples[a]

	L.I., *N* = 298		Ind., *N* = 159	
	TCA	TCB	TCA	TCB
ESA	.40	.04	.29	-.02
ESB	-.16	.39	-.09	.38
	Mich., *N* = 400		N.C., *N* = 428	
	TCA	TCB	TCA	TCB
ESA	.41	-.04	.19	-.04
ESB	-.18	.36	-.01	.48

[a] *r*'s pertinent to the hypothesis are underlined. All underlined *r*'s are significant at the .01 level.

underlined. All of these r's are significant at the .01 level. Of the eight r's only two are below .30. The cross-dimension r's, i.e., from ESA to TCB, and so on, hover around zero. Of the eight of them only two were statistically significant (at the .01 level), -.16 for ESB-TCA, Long Island, $N = 298$, and -.18 for ESB-TCA, Michigan, $N = 400$. These results are slightly better than the results obtained with ES-I and TC-I and ES-VI and TC-I. The results obtained with the fifth sample, New York, $N = 257$, were similar. The r for ESA-TCA was .31, and that for ESB-TCB was .45. Both are significant at the .01 level. The cross-dimension r's were -.06 for ESA-TCB and -.09 for ESB-TCA. It is clear that the hypothesis is again supported. And the results of Study IV are consistent with those of Studies II and III.

The results obtained with ES-VII and HT-III are given in Tables VII-10, VII-11, and VII-12. These tables are constructed like the earlier tables that reported the results obtained with HT-I. The results, too, are similar. The χ^2's are all significant at the .001 level. And the hypothesized relations are as predicted. For example, in Table VII-10, 61 of the 149 ESA Highs, or 41 per cent, obtained hits. Only 9 hits were expected by chance. On the other hand, 37 of the 149 ESA Lows, or 25 per cent, obtained hits. Thus, proportionately more of the ESA Highs than ESA Lows obtained hits. The results for ESB and HTB in Table VII-10 and the results reported in Tables VII-11 and VII-12 are similar. These results support the hypothesis. They are also consistent with the results reported in Study II with ES- I and HT-I.

Summary, Conclusions, and Reservations

Studies II, III, and IV were all directed toward testing the basic hypothesis of the study: Judges with progressive attitudes toward education, in selecting desirable traits of teachers, will choose traits congruent with progressive educational opinions and beliefs, and judges with traditional attitudes toward education will choose traits congruent with traditional opinions and beliefs. In Chapter VI we saw that the teacher characteristics factors that were "congruent with" progressive and traditional educational attitudes were "Positive Person Orientation" and "Systematic Task Organization," or "Person Orientation" and "Task Orientation." Therefore, in the present substudies we predicted positive correlations between Progressivism and Person Orientation and between Traditionalism and Task Orientation. We also predicted that progressive individuals, faced with choices of teachers of the two kinds, will choose person-oriented ones, while traditional individuals will choose task-oriented ones.

Table VII-10

ES-VII and HT-III: χ^2 Analyses, Long Island Sample, N = 298

A

	Hit[a]	No-Hit
ESA-Hi	61 (.41)	88 (.59)
ESA-Lo	37 (.25)	112 (.75)

χ^2 = 381.127 (.001)

B

	Hit	No-Hit
ESB-Hi	42 (.28)	107 (.72)
ESB-Lo	14 (.09)	135 (.91)

χ^2 = 119.357 (.001)

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[a] Chance expectation in high or low group (rounded): Hit = 9; No-Hit = 140.

Table VII-11

ES-VII and HT-III: χ^2 Analyses, Indiana Sample, N = 159

A

	Hit[a]	No-Hit
ESA-Hi	27 (.34)	52 (.66)
ESA-Lo	16 (.20)	63 (.80)

χ^2 = 123.262 (.001)

B

	Hit	No-Hit
ESB-Hi	22 (.28)	57 (.72)
ESB-Lo	12 (.15)	67 (.85)

χ^2 = 67.779 (.001)

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[a] Chance expectation in high or low group: Hit = 5; No-Hit = 74.

Table VII-12

ES-VII and HT-III: $\underline{\chi}^2$ Analyses, North Carolina Sample, $\underline{N}$ = 428

A

	Hit[a]	No-Hit
ESA-Hi	71 (.33)	143 (.67)
ESA-Lo	40 (.19)	174 (.81)

$\underline{\chi}^2$ = 311.408 (.001)

B

	Hit	No-Hit
ESB-Hi	75 (.35)	139 (.65)
ESB-Lo	33 (.15)	181 (.85)

$\underline{\chi}^2$ = 323.832 (.001)

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[a] Chance expectation in high or low groups: Hit = 13; No-Hit = 201.

Three attitude scales and four teacher characteristics measures were administered to teachers and graduate students of education in New York (six samples), North Carolina (two samples), Texas, Wisconsin, Indiana, and Michigan. The total number of subjects exceeded 3,500. Two types of scales to measure perceptions of desirable teacher characteristics were used. The two types were completely different from each other.

The correlations were as predicted and the hypothesis consequently upheld. This was true in all the samples. We can therefore have considerable confidence in the external validity of the relations studied. In addition, when the relations were tested using choice, or situational, instruments, attitudes seemed to influence choices of teachers according to the traits they possessed. This, too, was true in all samples. It must be added, however, that the correlations were modest in magnitude--from about .20 to about .40--even though statistically significant.

We have asked, directly, no internal validity questions. That is, how do we know that the correlations truly reflect the relations we say they do? We will attack this question in Chapter X. Meanwhile, we now turn to another method of analysis, a method that we think tests the hypothesis in a "crucial" manner. To do this we reanalyze the data of Study IV with first- and second-order factor analysis.

Chapter VIII

Educational Attitudes and Teacher Trait Perceptions: A Factor Analytic Approach[1]

In this chapter we describe a factor analytic method for testing the basic hypothesis and report the results obtained with this method. The hypothesis can be viewed structurally. Let us review hypotheses 2 and 3. Hypothesis 2 says that there are two or more trait factors behind perceptions of the effective teacher, and that these factors will correspond to progressive and traditional notions of education and teaching. Hypothesis 3 says that judges with progressive attitudes toward education will choose traits congruent with their attitudes and judges with traditional attitudes toward education will choose traits congruent with their attitudes. The substance of these hypotheses can be translated into factor analytic and factor spatial terms. If we factor analyze the intercorrelations of the items of our attitude and perception instruments together, the hypotheses suggest that there will be two broad attitude factors and two broad perception factors and that these two sets of factors will span the same two-dimensional factor space.

There are two or three difficult problems with such an approach. One is that the subjects' responses to both attitude and perception items should be of the same type. Fortunately, both ES-VII and TC-VIII, the instruments used in the present analysis, are seven-point summated-rating scales. A second problem inheres in multiplicity of factors. Since we already know that there are clearly four or more educational attitude factors (see Chapter V) and trait perception factors (see Chapter VI), how can we expect these various factors to come together, as it were, in two factors? There are two technical answers, or solutions, to this question, one much better than the other, but both legitimate. The first involves factoring all the items of both scales together, dropping all factors but the first two, and then rotating the two factors to hypothesis. If most of the _A_ items of both scales--that is, progressivism attitude items and people orientation perception items--load positively on one of the factors and not on the other factor , and similarly for the _B_ items of both scales, then the hypothesis is supported. While this method has shortcomings, we used it under the assumption that the two factors will be strong ones in the sense that they will appropriate most of the common factor variance. Moreover, the principal axes method of factor analysis helps us because it extracts the maximum possible amount of variance of such factors. This means that the extraction of two factors from our data will maximize the possibility of an adequate test of the hypothesis. This is what we might call a "forced" two-factor solution.

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[1] The analyses and results of this chapter were not anticipated in the original study proposal. Their desirability, even necessity, became evident toward the end of the investigation. Understanding of what we report here will be facilitated by understanding so-called second-order factor analysis. Although we used second-order analysis in Chapters V and VI, we did not give much explanation of the procedure. In this chapter, however, more explanation will be required because of the rather unusual manner in which we used second-order analysis and because the ultimate interpretation of the data of course depends on the validity of our analytic procedures. Second-order factor analysis has not been discussed much in the literature. The best reference is the oldest: Thurstone's classic book, Multiple-Factor Analysis (1947, Ch. XVIII).

A much better way to solve the problem is to use second-order factor analysis. We know that there are several (first-order) factors in each of the sets of data. In the factor analysis of the ES-VI data reported in Chapter V, an eight-factor solution was reported. From these data, a four-factor solution is also justified. In the factor analysis of the TC-I data reported in Chapter VI, a three-factor solution was reported. We might, however, have also reported a six- or seven-factor solution. If we had factored the items of both scales together, moreover, it is highly probable, as we shall see from the analysis of the ES-VII and TC-VIII data reported in this chapter, that ten or more factors might legitimately have been extracted and interpreted. While ES-VII and TC-VIII have fewer items than ES-VI and TC-I, the point is still valid: first-order factor analysis will yield many factors.

Again, how can we hypothesize two "broad" factors in view of this multiplicity of factors? The paradox is resolved with second-order analysis: we factor the multiplicity of factors with the expectation that two second-order factors, or factors of the factors, will emerge. And we also expect that these two second-order factors will correspond closely to progressivism and traditionalism. That this is a viable and productive procedure has already been shown by the second-order analyses of the ES-VI and TC-I data reported in Chapters V and VI. We n w use essentially the same procedure with the combined ES-VII and TC-VIII data. We henceforth call the method the "double method" for convenience. The "double" refers to the simultaneous analysis of ES-VII and TC-VII together. Further details of the method are given below.

Certain other problems arise with second-order factor analysis. One of these is that final second-order solutions can be unstable unless the underlying factor structures are rather sharp and clear. Error variance and variance due to what can be called factor idiosyncrasy--the emergence in different samples of factors somewhat different from each other--can be more important since they can cause fluctuations in the correlations among the first-order factors and thus instability of second-order solutions. One way to counter this possible instability is to use very large samples --400 or more, and preferably 600 or more. (With some kinds of data, 1000 or more cases would be wise.)

Since the ultimate interpretation of the data and its analysis in second-order factor analysis depends so heavily on the validity of the procedures leading to the data interpretation, it will be wise to clarify the above remarks with an example. If we factor analyze the Long Island data separately, we might obtain six factors. The Indiana data, on the other hand, might yield five factors. Four of the five and six factors of the two samples might agree very well: to all intents and purposes they seem to be the "same" factors. But suppose that one factor from each sample was rather unlike any factor in the other sample. This can happen, of course. Some basis for viewing educational problems that may exist in Long Island may be almost non-existent in Indiana. Two separate second-order analyses can be more or less affected by these inevitable discrepancies, especially if the samples are small. If, however, we combine the samples, the sample and factor idiosyncrasies tend to wash out: the larger the sample, the less the effects of relatively minor characteristics of subsamples.

Still another problem arises from analyzing the data of ES-VII and TC-VIII together: the sheer raw difference between kinds of factors, or what might be called factor separability. The two scales are made up of completely different kinds of items. It is to be expected that these items will form separate factors, that is, there will be several first-order attitude (ES) factors and several teacher trait perception (TC) factors. What will happen in the second-order analysis? Will the ES and TC first-order factors also form separate second-order factors, or will the underlying unities behind both scales "cause" the ES and TC factors to come together in the second-order factor space? In other words, if there are two second-order factors, as we predict, will one of them have only attitude factors on it and the other perception factors, or will the attitude and perception factors combine on one factor that describes progressivism and also combine on another factor that describes traditionalism? We predicted the latter.

Long Island and Indiana Data

The "double method" mentioned above was used with two sets of data. First, the data of the Long Island, N=298, and Indiana, N= 159, samples were combined into one sample of 457 subjects. The sample was combined, of course, to yield an N large enough for second-order analysis. To know whether the two samples were similar enough to combine, we compared ES and TC means and standard deviations (see Tables VII-2 and VII-3) and the rotated factor solutions of the separate scales. Most of the mean differences were small: .07, .10, .15, and .22. So were the standard deviation differences: .09, .09, .05, and .05. More important, factor analyses (principal axes method and Varimax rotations) of ES-VII and TC-VIII of the two samples separately showed highly similar structures. Two-factor and four-factor solutions of ES-VII were compared using the coefficient of congruence (Harman, 1960, p. 257). All the coefficients were .90 or greater.[2] In the two-factor comparisons, the coefficients were both .97. The coefficients of congruence of the two-factor comparisons of TC-VIII were .95 and .96. On the other hand, the coefficients of four-factor comparisons were .94, .89, .84, and .08, indicating good agreement for three factors but not for the fourth factors.

In addition, we factor analyzed the ES-VII and TC-VIII items together (30 + 22 = 52 items) for each sample separately. Visual comparisons of the two-factor solutions showed high agreement. The four-factor solutions were quite similar but showed certain differences. Since only general agreement was expected, and since one of our major purposes in combining the samples was to wash out factor idiosyncrasies, we felt justified, on the basis of these comparisons, in combining the samples.

Method

The basic data of the present substudy were the responses to ES-VII and TC-VIII of 298 teachers of a school district in

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[2] It should be mentioned, however, that the N of the Indiana sample was 322 and not 159. In Indiana, only 159 subjects took both scales. We used the total sample of 322 subjects in the separate analysis for greater factor stability.

Long Island, New York, and 159 teachers and graduate students of education in Indiana.[3] The responses to both scales were combined as though they were to one scale of 52 items instead of to two scales of 30 and 22 items each. (This is the "double" analysis mentioned above.) As indicated earlier, a first-order item factor analysis with a "forced" two-factor solution (principal axes method and a Varimax rotation) was done.

The major analyses, as also indicated earlier, was second-order factor analysis of the same date. This was done in two ways: (1) four first-order factors were extracted, rotated obliquely, and the intercorrelations of the primary factors were factored; and (2) ten first-order factors were extracted, rotated obliquely, and the intercorrelations of the primary factors were factored. In each case, the complete second-order method was as follows. The first-order factors were extracted with the principal axes method and $\underline{R}^2$ as estimated communalities (Harman, 1960, Ch. 9 and p. 89). These factors were first rotated orthogonally with Saunders' Equamax method.[4] Then, to the Equamax rotated factors, the Promax method of oblique rotation was applied (Hendrickson and White, 1964) in a version slightly altered by Saunders. The correlations among the primary factors were calculated (Thurstone, 1947, Ch. XVIII), and these correlations factored by the principal axes method. The resulting second-order factors were rotated orthogonally using the Varimax method (Kaiser, 1958).

Results

The intercorrelations of the 52 items of both scales, ES-VII (30 items) and TC-VIII (22 items) are reported in Table VIII-A.[5]

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[3] We are indebted to Mrs. Margaret Squicciarini for administering the scales to the Long Island teachers and to Professor William Lynch, Indiana University, for having the scales administered in Indiana.

[4] Equamax is very similar to Varimax except that it tends to spread the variance over the factors more than Varimax does. See Footnote 4, Chapter V.

[5] Tables VIII-A through VIII-J have been deposited with the American Documentation Institute. Order Document No. 9614 from ADI Auxiliary Publications Project, Photoduplication Service, Library of Congress, Washington, D. C. 20540. Remit in advance $2.50 for microfilm or $6.25 for photocopies and make check payable to: Chief, Photoduplication Service, Library of Congress.

The unrotated factor matrix extracted from the correlation matrix of Table VIII-A is reported in Table VIII-B. The first test of the hypothesis is furnished by a "forced" two-factor orthogonally rotated solution. This solution is given in Table VIII-C. In general, the loadings are as predicted: the ESA item loadings and the TCA item loadings fall on the first factor, and the ESB and TCB loadings fall on the second factor. Specifically, 12 out of 15 ESA items loaded significantly (loadings ≥ .35 were considered significant) and nine out of 11 TCA items loaded significantly on the first factor, while nine out of 15 ESB items and 10 out of 11 TCB items loaded significantly on the second factor. In short, 41 out of 52 loadings fell on the "correct" factors and were significant.[6] The basic hypothesis is supported by this evidence.

We turn now to more interesting analyses and data. First, we examine the four-factor oblique solution with its accompanying second-order analysis. Recall that our prediction is that the ES and TC items will separate: ESA items should fall on one factor, ESB items on another, TCA items on a third factor, and TCB items on a fourth factor. The four-factor oblique (Promax) solution is reported in Table VIII-D. Using a significance criterion of .25 (oblique rotation loadings are generally smaller than orthogonal ones), we find 13 out of 15 ESA items loaded on one factor, 11 of 15 ESB items loaded on another factor, 11 of 11 TCA items loaded on a third factor, and 11 of 11 TCB items loaded on the fourth factor. There were eight "incorrect" loadings, that is, items that appeared on factors other than the predicted ones. These were of comparatively little importance and thus will not be discussed here. These results have no direct bearing on the hypothesis, however. They only show that the attitude (ES) items and the trait perception (TC) items are factorially discriminable, a necessary foundation for the ultimate second-order test of the hypothesis.

The correlations among the four factors are reported in Table VIII-1. The correlations pertinent to the hypothesis, ESA-TCA and ESB-TCB, are .36 and .21, whereas all the others hover around zero. The factor analysis of this small matrix yields the unrotated factor matrix reported in Table VIII-2. It is clear that this matrix needs no rotation: the structure cannot be improved. Note that ESA and TCA are substantially loaded on Factor *A*, while ESB and TCB are substantially loaded on Factor *B*. All the other loadings are close to zero. In other words, the hypothesis is supported rather dramatically with these data. A factor plot of these second-order loadings shows a "perfect" structure with ESA and TCA close to one axis and ESB and TCB close to the other. The plot is given in Figure VIII-2. (The figure actually contains the plots of both combined samples. Those of this sample are indicated by arabic numerals.) Although it is clear that the ES and TC items are factorially discriminable--the two kinds of items load on different first-order factors--it is equally clear that the two kinds of items come together in second-order factor space. Another way to say this is that the ES and TC A items are different kinds of things, and, similarly, the ES and TC B items are different kinds of things, but underlying these phenotypically different kinds of things are what might be called genotypic entities. We believe these underlying entities to be the educational attitude factors that have appeared many times in our previous research: progressivism and traditionalism.

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[6] Actually, had we relaxed the significance criterion, the evidence would have been more impressive.

A more crucial test of the hypothesis is embedded in the data. While the results of the four-factor factor analysis seem very clear, even pat, we must ask: What will happen when much more of the variance of the items is included, when many first-order factors are rotated obliquely and then subjected to second-order analysis? With four first-order factors, the emergence of only two second-order factors was undoubted: the first three second-order eigenvalues were .72, .43, and .06. Suppose, however, we extract eight, nine, or ten first-order factors. Will two second-order factors again emerge? Will the ES and TC factors again separate? Most important, will they load "properly" on the second-order factors?

Since there is no really dependable criterion of how many factors to extract and to rotate (Overall, 1964), our procedure was a pragmatic one: we performed the complete second-order analysis on six, seven, eight, and ten factors. In principle, any one of these solutions should be adequate to test the hypothesis: the second-order factors should emerge in any of them. And they did. All the solutions were more or less satisfactory. We chose, however, to work with the ten-factor one in order to give as much opportunity as possible for factor separation of the ES and TC factors. We thus require the data to yield two second-order factors from a variety of first-order factors--a difficult task.

The first three eigenvalues of the ten-factor second-order solution were 2.12, 1.48, and .69. There are two, perhaps three, second-order factors in the data. While no definitive answer can be given to the question, Are there two or three second-order factors?, we chose two factors on the basis of the drop in eigenvalue magnitude from 1.49 to .69 and from examination of the rotated three-factor solution, which added nothing

Table VIII-1

Correlations Among Primary Factors, Four-Factor Solution, ES-VII + TC-VIII, Combined Sample, Long Island and Indiana, N=457[a]

	ESB	TCA	TCB
ESA	-.02	.36	-.03
ESB		-.04	.21
TCA			.07

[a] r's pertinent to the hypothesis are underlined.

Table VIII-2

Unrotated Second-Order Factors, Four-Factor Solution, ES-VII + TC-VIII, Combined Sample, Long Island and Indiana, _N_=457[a]

	_A_	_B_	Scale
I	._60_	-.03	ESA
II	-.05	._45_	ESB
III	._60_	.05	TCA
IV	.03	._47_	TCB

[a] It is obvious that this matrix needed no rotation.

appreciable to the two-factor solution (it split ESA and TCA factors into two factors). Fortunately the difference is not crucial to the test of the hypothesis. Either solution could have been used. (See, too, the later discussion of the Michigan and North Carolina data and analysis where the question of two or three factors is clearly resolved.)

The obliquely rotated ten-factor factor matrix is given in Table VIII-E. The ES and TC items were loaded on separate factors. We have here four kinds of items, ESA, ESB, TCA, and TCB, and four kinds of factors, factors with ESA items, ESB items, TCA items, or TCB items. In general, there were no factors that included two or more of these types of items. There were three ESA factors, two ESB factors, three TCA factors, and two TCB factors. There can be little doubt of the separability of the ES and TC factors.

The correlations among the ten factors are reported in Table VIII-3. They are all consistent with our knowledge of the ES and TC relations. The unrotated and rotated second-order factor matrices are reported in Table VIII-4. We concentrate now on the rotated matrix. With one exception, II, a TCB factor, all factors are loaded as they "should be": the ESA and TCA first-order factors are loaded on Factor A, while the ESB and TCB first-order factors are loaded on Factor B. First-order Factor II, the exception, is a TCB factor that is positively loaded on both second-order factors (.45 and .34). This factor--defined by the adjectives efficient, reliable, conscientious, punctual, thorough, self-controlled--may be a main underlying cause of the consistent positive correlations between TCA and TCB that we encountered earlier when studying TC-I. In any case the hypothesis is supported, if not quite as dramatically as it was with the four-factor solution. To show the reader quite clearly the whole ten-factor second-order picture, we present a graph of the two factors with the ES and TC factors plotted in the second-order two-factor space (Figure VIII-1). The plot nicely illustrates the two second-order clusters, one around the A axis, the other around the B axis. It can be seen, too, how the one exception, II (TCB), has projections on both axes.

Michigan and North Carolina Data

We collected two large samples of data in Michigan and North Carolina partly for replication purposes. We wanted more assurance that the results obtained with the Long Island and Indiana data--we used the second-order analysis after the data

Table VIII-3

Correlations Among Primary Factors, Ten-Factor Solution, ES-VII + TC-VIII, Combined Samples, Long Island and Indiana, N=457[a]

	II	III	IV	V	VI	VII	VIII	IX	X
	TCB	ESA	TCA	ESA	ESB	ESA	TCA	TCB	TCA
I	21	-33	-21	-25	49	10	-26	35	-01
II		12	29	30	15	19	23	22	24
III			37	51	-01	40	11	-29	08
IV				28	-17	16	25	00	15
V					08	42	27	-10	26
VI						20	-16	24	00
VII							20	-06	27
VIII								-04	25
IX									16

[a] Factor I: ESB. Decimal points omitted.

Table VIII-4

Unrotated and Rotated Second-Order Factor Matrices, Ten-Factor Solution, ES-VII + TC-VIII, Combined Sample, Long Island and Indiana, *N*=457[a]

	I	II	*A*	*B*	Scale
I	-.45	.67	-.20	.$\underline{79}$	ESB
II	.31	.47	.$\underline{45}$	.34	TCB
III	.71	-.05	.$\underline{65}$	-.29	ESA
IV	.49	.02	.$\underline{47}$	-.15	TCA
V	.70	.18	.$\underline{72}$	-.07	ESA
VI	-.14	.61	.08	.$\underline{63}$	ESB
VII	.48	.36	.$\underline{57}$	.17	ESA
VIII	.43	.00	.$\underline{40}$	-.15	TCA
IX	-.23	.45	-.06	.$\underline{50}$	TCB
X	.31	.25	.$\underline{38}$	.13	TCA

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[a] Loadings (.35) are considered significant. They are underlined.

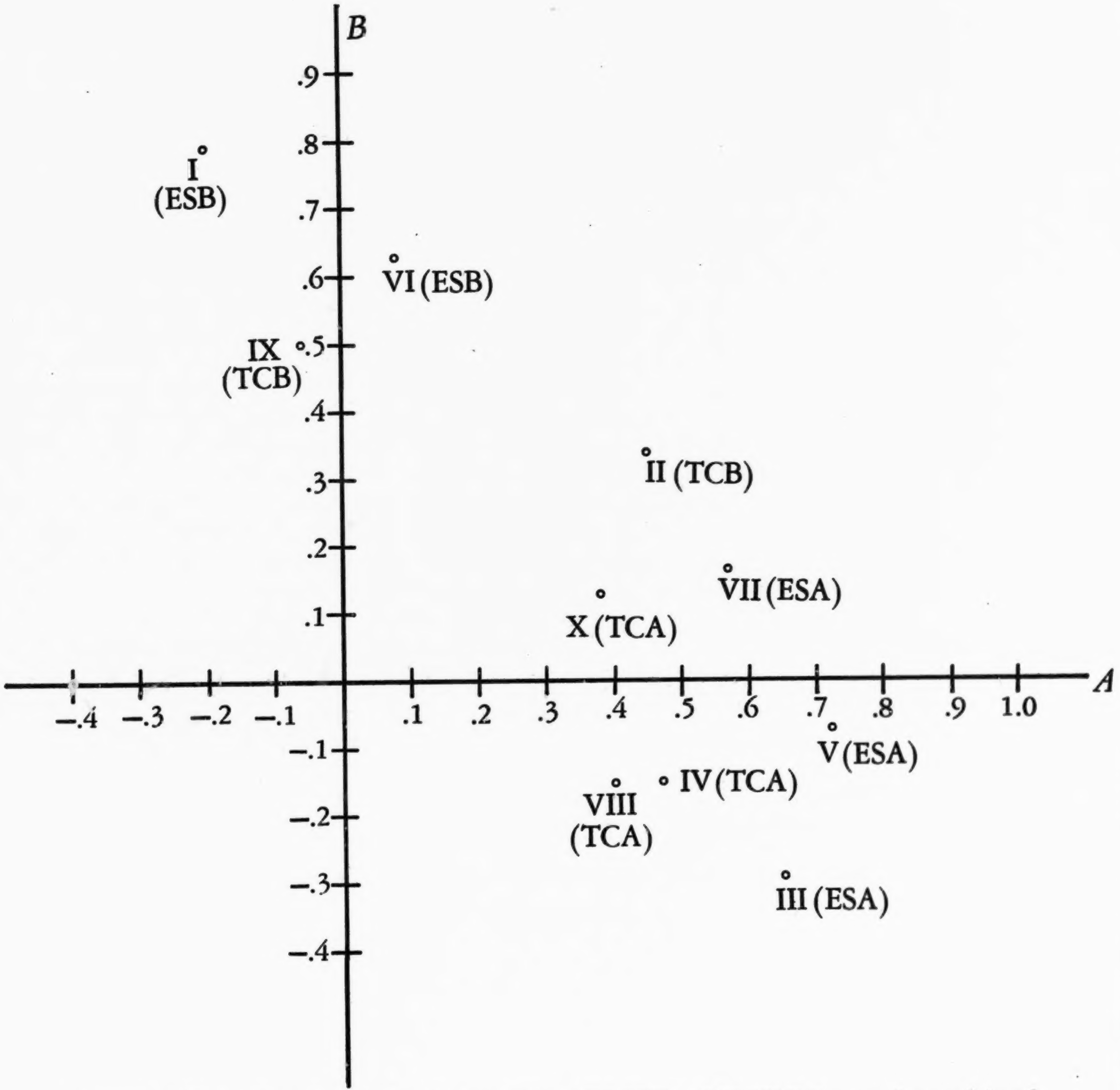

Figure VIII-1. Second-Order Factor Plot, ES-VII + TC-VIII Items, Long Island and Indiana, $N=457$. See text for definitions of symbols.

had been collected--were replicable in other parts of the country.[7] The procedures and analyses were the same and need only be mentioned briefly in this section.

ES-VII and TC-VIII were administered to 400 teachers and graduate students of education in eastern Michigan and to 428 teachers and graduate students of education in North Carolina.[8] The conventional statistics are reported in Tables VII-2 and VII-3. They require no comment except to say that the ESB means are somewhat lower than the Long Island and Indiana ESB means, and the Michigan TCB mean is appreciably lower and the North Carolina TCB mean appreciably higher than the Long Island and Indiana comparable means.

The 52 items of ES-VII and TC-VIII of the samples separately were intercorrelated and factor analyzed with the principal axes method and Varimax rotations of two, four, five, and seven factors. The purpose of these analyses was to study the similarities of the factor structures in order to justify combining the two samples for the ultimate second-order analyses. Similarly, oblique solutions of four, six, seven, eight, nine, and ten factors of the two separate samples were compared. The coefficients of congruence are given in Table VIII-5. With two exceptions, all the coefficients of the orthogonal solutions (top half of the table) are substantial. Of the 44 coefficients of the oblique solutions, 10 are less than .60; all the rest are .70 or greater, most of them greater than .80. In sum, the comparable rotated factors of the two samples, both orthogonal and oblique, are quite similar, justifying combining the samples.

The 52 x 52 correlation matrix of the data of the combined samples is given in Table VIII-F. The unrotated matrix of factor loadings is given in Table VIII-G. Just as in the earlier study, we "forced" an orthogonal Varimax two-factor solution. It is given in Table VIII-H. While the results are not as strong as they were with the combined Long Island and Indiana sample, they still support the hypothesis. Of the 15 ESA items, 10 are loaded on one factor, while nine of the 15 ESB items are loaded on the other factor. Seven of 11 TCA items are loaded on the same factor as the ESA items, while 11 of the 11 TCB items are loaded on the same factor as ESB.

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[7] Other reasons for collecting the Michigan and North Carolina data will be given in the next chapter.

[8] Professors Wilbur Williams, Eastern Michigan University, and Roy Sommerfeld, University of North Carolina, administered the scales in Michigan and North Carolina. We express our gratitude for their expert help.

The "forced" four-factor oblique solution, reported in Table VIII-I, is gratifying. The ESA items (15 of 15) are loaded on one factor, the ESB items (14 of 15) on another, the TCA items (9 of 11) on a third factor, and the TCB items (11 of 11) on the last factor. The ES and TC items are very clearly discriminable factorially.

The correlations among the four primary factors are given in Table VIII-6. Although the correlations are not as pat as they were in the earlier analyses, they support the hypothesis. The *r* between ESA and TCA is .29, and the *r* between ESB and TCB is .34. These are as they should be. Now, however, we have more substantial cross-dimension *r*'s. Rather than labor their interpretation let us look at the second-order analysis.

The unrotated and Varimax-rotated second-order factor matrices are presented in Table VIII-7 together with the scale designations of the factors. The factor picture of the rotated matrix is essentially the same as that of the Long Island Indiana sample (see Table VIII-2) except for the cross-factor loadings, which range from -.20 to .22 as contrasted to the earlier loadings that hovered around zero. Nevertheless, the hypothesis is clearly supported: ESA and TCA appear on one factor, while ESB and TCB appear on the other factor. To make the factor picture clear, the rotated loadings of Table VIII-7 are plotted in Figure VIII-2 (roman numerals). The plots are so clear they need no comment.

Among the various many-factor oblique solutions we selected the nine-factor one because it was consistent throughout with the correlation matrix and because it had a sufficient number of factors for an adequate second-order analysis. (We might have used eight or ten factors and gotten very similar results, however.) The correlations among the nine primary factors are given in Table VIII-8. There were clearly two second-order factors in the data: the first three eigenvalues were 1.85, 1.17, and .37, unlike the Long Island and Indiana data where the third second-order factor eigenvalue was larger. The unrotated and orthogonally (Varimax) rotated second-order factor matrices are given in Table VIII-9. Again, the results are very similar to those obtained with the earlier sample (see Table VIII-4 and Figure VIII-1). They unambiguously support the hypothesis. The ESA and TCA factors are loaded positively and substantially on second-order Factor *A* and are mostly near zero on *B*. The ESB and TCB factors are loaded positively and substantially on second-order Factor *B* and, in

Table VIII-5

Coefficients of Congruence Between Michigan and North Carolina Factors, Combined ES-VII and TC-VIII Scales, Orthogonal and Oblique Solutions[a]

	I	II	III	IV	V	VI	VII	VIII	IX	X
Orthogonal:										
2 factors	89	95								
3 factors	92	80	85							
4 factors	61	83	87	92						
5 factors	82	83	73	91	95					
7 factors	90	89	91	93	83	81	60			
Oblique:										
4 factors	76	90	54	84						
6 factors	87	88	88	74	76	70				
7 factors	87	82	87	85	81	73	61			
8 factors	85	83	78	84	85	66	77	62		
9 factors	83	74	84	67	82	57	70	(63)[b]	66	
10 factors	82	76	83	85	79	74	64	(65)	58	75

[a] Decimal points are omitted.

[b] The coefficients in parentheses are "duplicate" values, i.e., values between a factor vector and another factor vector, one of the vectors already having been used in a previous calculation.

Table VIII-6

Correlations Among Primary Factors, Four-Factor Solution, ES-VII + TC-VIII, Combined Sample, Michigan and North Carolina, *N*=828[a]

	ESB	TCA	TCB
ESA	-.14	.29	.02
ESB		-.09	.34
TCA			.26

[a] *r*'s pertinent to the hypothesis are underlined.

Table VIII-7

Unrotated and Rotated Second-Order Factors, Four-Factor Solution, ES-VII + TC-VIII, Combined Sample, Michigan and North Carolina, N=828[a]

	Unrotated Factors		Rotated Factors		Scale
	I	II	A	B	
I	.49	.19	.52	-.11	ESA
II	-.48	.37	.20	.57	ESB
III	.41	.41	.57	.12	TCA
IV	-.14	.61	.22	.59	TCB

[a] Significant loadings in the rotated matrix ($\geq .35$) are underlined.

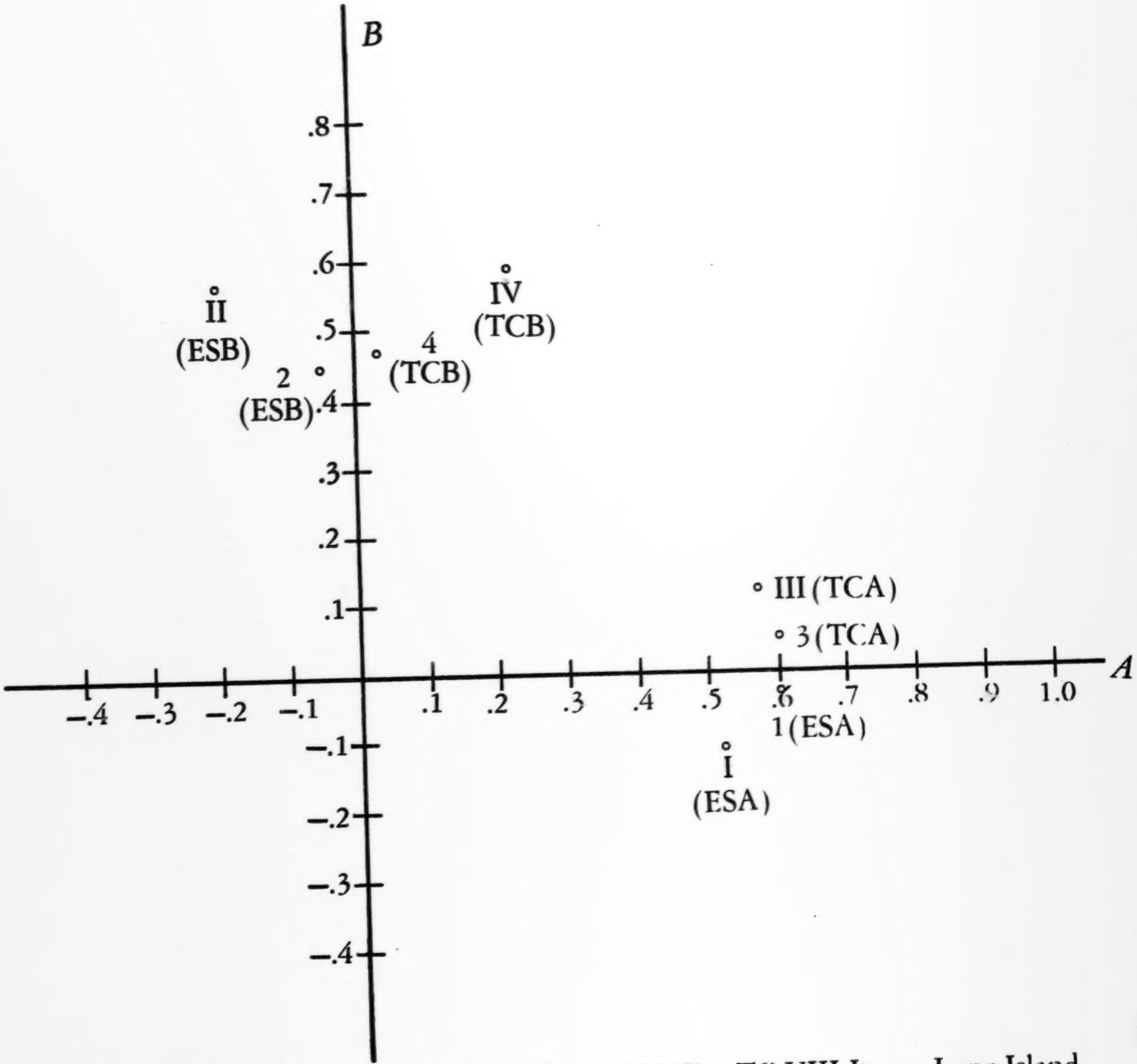

Figure VIII-2. Second-Order Factor Plots, ES-VII + TC-VIII Items, Long Island and Indiana, $N = 457$ (arabic numerals); Michigan and North Carolina, $N = 828$ (roman numerals). Four factors.

general, not on Factor A. (The exceptions to these statements are negative loadings: -.17 and -.43 for III and IV on A, and -.24 for VIII on B.) To make comparisons with the earlier sample and to show the strength of the evidence, the factor loadings of the rotated matrix of Table VIII-9 are plotted in Figure VIII-3. It can be seen that the plots of Figures VIII-1 and VIII-3 are very similar and together constitute rather impressive evidence of the validity of the hypothesis.

Summary and Conclusions

The responses of 457 teachers and graduate students of education from Long Island (N=298) and Indiana (N=159) and 828 teachers and graduate students of education from Michigan (N=400) and North Carolina (N=428) to the items of an educational attitudes scale and a teacher traits perception scale were separately intercorrelated and first- and second-order factor analyzed in an attempt to test the hypotheses that there are two or more factors behind perceptions of the effective teacher, that these factors correspond to progressive and traditional notions of education and teaching, and that judges with progressive attitudes toward education choose traits congruent with their attitudes and that judges with traditional attitudes toward education choose traits congruent with their attitudes. These hypotheses translated into factor analytic terms suggest a single hypothesis: There are two broad attitude factors and two broad perception factors, and these two sets of factors span the same two-dimensional second-order factor space.

With both samples "forced" two-factor first-order orthogonal solutions supported the hypothesis: ESA and TCA items fell on one factor, and ESB and TCB items fell on another factor. Second-order solutions of four factors of both sets of data also supported the hypothesis: ESA, ESB, TCA, and TCB items fell on separate factors, but second-order analysis of the correlations among the four primary factors yielded two second-order factors one of which was defined by ESA and TCA loadings and the other by ESB and TCB loadings.

The most interesting and important analyses of the two sets of data yielded highly similar results. In the first set, ten first-order oblique factors and two second-order factors were extracted and rotated. In the second set, nine first order and two second-order factors were extracted and rotated. The main difference between the two sets of data was that the presence of two and only two second-order factors was clearer in the second set than it was in the first set.

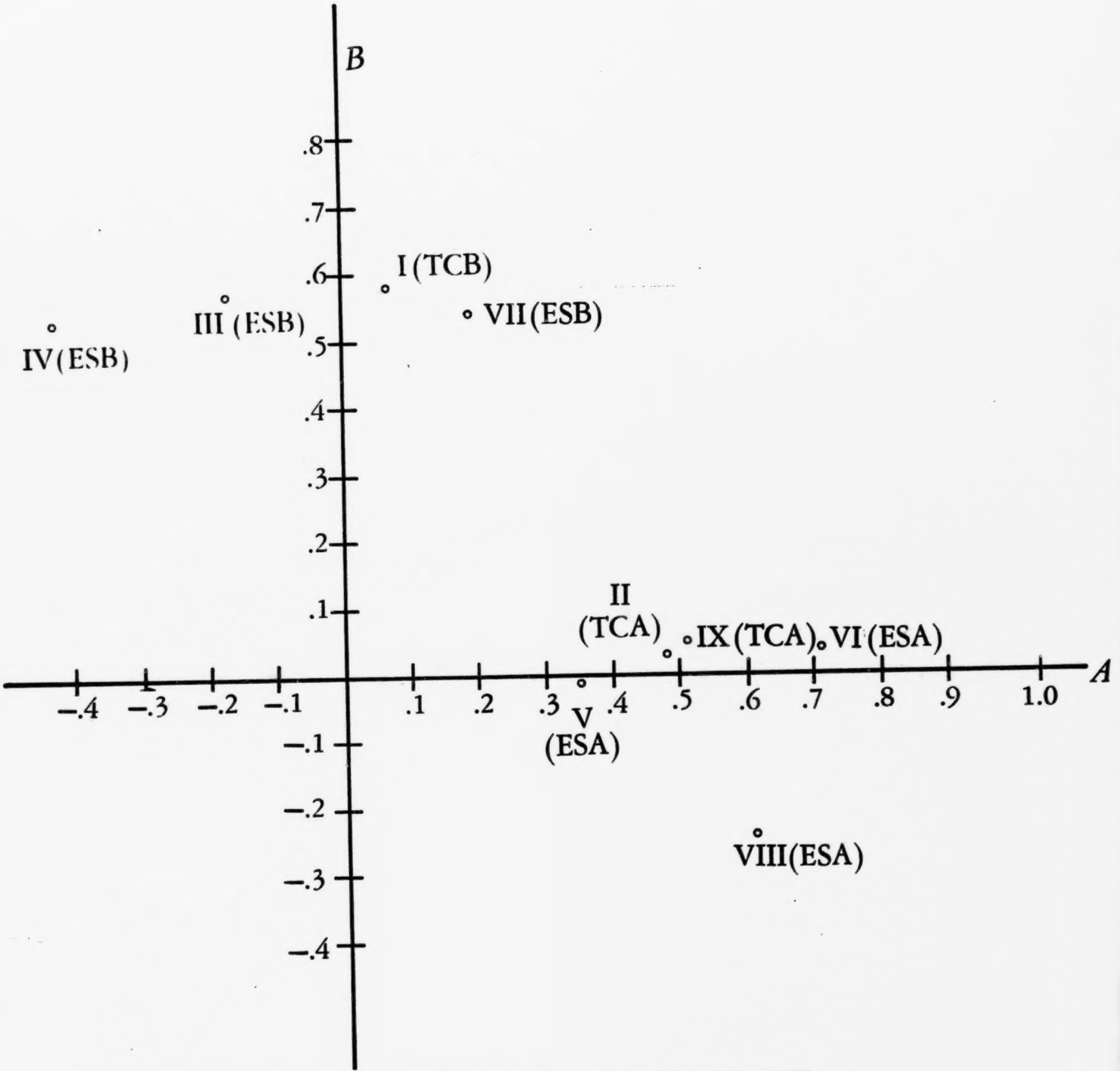

Figure VIII-3. Second-Order Factor Plot, ES-VII+TC-VIII, Michigan and North Carolina, $N=828$. Nine factors.

Table VIII-8

Correlations Among Primary Factors, Nine-Factor Solution, ES-VII + TC-VIII, Combined Sample, Michigan and North Carolina, N=828[a]

	TCA	ESB	ESB	ESA	ESA	ESB	ESA	TCA
	II	III	IV	V	VI	VII	VIII	IX
I	21	27	32	-05	07	32	-12	05
II		-16	-20	21	31	00	20	27
III			40	-14	-09	27	-18	06
IV				-02	-32	21	-35	-31
V					25	13	26	05
VI						23	47	34
VII							-04	12
VIII								28

[a] Factor I: TCB. Decimal points are omitted.

Table VIII-9

Unrotated and Rotated Second-Order Factor Matrices, Nine-Factor Solution, ES-VII + TC-VIII, Combined Sample, Michigan and North Carolina, *N*=828[a]

	Unrotated Factors		Rotated Factors		Scale
	I	II	*A*	*B*	
I	.16	.56	.08	.57	TCB
II	-.43	.22	.48	.03	TCA
III	.38	.46	-.17	.57	ESB
IV	.60	.31	-.43	.53	ESB
V	-.32	.13	.35	-.01	ESA
VI	-.64	.33	.71	.04	ESA
VII	.04	.57	.19	.54	ESB
VIII	-.65	.03	.61	-.24	ESA
IX	-.45	.25	.51	.05	TCA

---

[a] Significant loadings in the rotated matrix (≥ .35) are underlined.

With one exception all the first-order factors loaded on the second-order factor, and ESB and TCB factors on the other second-order factor. In short, the results were much the same in both sets of data; in fact, the congruence was remarkable.

We consider these results to be the most important in the study. They support the dualistic hypothesis that two broad factors underlie both educational attitudes and teacher trait perceptions despite the apparent factor separability of the first-order attitude and perception factors. That is, there seems to be two substantial sources of common factor variance, and we believe these sources to be progressivism and traditionalism. While it would be naive to make direct causal statements or to suppose that most of the variance of teacher trait perceptions is determined by educational attitude variance, it is certainly safe to say that some common source underlies both the attitude variance and the perception variance. The results, then, leave little doubt of the validity of the hypothesis.

Chapter IX

Educational Attitudes, Trait Perceptions, and Supplementary Variables

Our concern to this point has been exclusively with the structure of attitudes toward education, the structure of perceptions of desirable teacher characteristics, and the relations between educational attitudes and teacher trait perceptions. In this chapter we describe the relations between attitudes, perceptions, and a number of variables that can be conceived in one way or another to affect the original attitude-perception relations. For example, one of the problems of the study asked the question: What is the relation between attitudes toward education, educational level (elementary and secondary), and perceptions of the traits of the effective teacher? (See Subproblem 3, original proposal, p.3.)[1] We have some data that bear on this question.

Response set was another problem we faced. Are the relations found between attitudes and perceptions in part a function of some form or forms of response set? Some of our data also bear on this question.

We also wanted external evidence on the validity of our attitude and perception measures and on the relation between them. We were able to find and use two other measures of attitudes toward education but none for teacher trait perceptions.

A question that is particularly interesting, both theoretically and practically, comes from factor analytic notions. Most measures of psychological variables are factorially complex. If one can "purify" one's measures, how will the relations one is studying be affected? We know, for example, that our ESA and ESB measures each contain more than one factor, though we saw in Chapter V that the A factors were positively correlated with each other and similarly for the B factors. What will happen to the correlations between the ES and TC measures if we use the results of our factor analyses (Chapter V) and correlate, for example, factorially "pure" attitude measures with the TC measures? The results of our attempts will be reported later.

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[1] There is no hypothesis that really expresses this problem. One of the hypotheses said that perceptions of effective teacher traits will have the same general factor structure at all educational levels but that it would be more marked or differentiated at the elementary level than at the secondary level. Early in the study we decided that this hypothesis was poorly stated--it lacked operational precision and could not be adequately tested. Instead, we should have stated it along the lines of Problem 3, above.

In addition, we used several miscellaneous measures of potential psychological relevance and interest--measures of social attitudes, authoritarianism, dogmatism, intelligence, category width, field dependence, and social judgment. The relations between these measures and our principal attitude and perception measures are reported and discussed in this chapter.

We group the variables and the obtained data as follows:

Educational variables: educational level (elementary and secondary), years of teaching experience, sex.

Attitude factor variables: four educational attitude variables, two ESA and two ESB, based on the factor analyses described in Chapter V.

Response set variables: Social Desirability (Edwards), Social Acquiescence (Bass), Agreement Response (Couch and Keniston).

Other measures of educational attitudes: the MTAI and the Teacher Preference Schedule (Stern).

Miscellaneous psychological variables: social attitudes, social judgment (Thurstone), category width (Pettigrew), field dependence (Witkin - Jackson), the F Scale, the D Scale, and a test of intelligence (Wonderlic).

Educational Variables

In this section two types of approaches will be described: correlational and experimental. In the correlational work, we simply asked about the correlations between our main variables and years of teaching experience, sex, and educational level. Educational level was a subject variable, i.e., we asked our subjects whether they taught at the elementary or secondary levels and then correlated the responses with our main variables. In the experimental work, we manipulated the instructions of the main instruments. We wanted to know how the attitude-perception relations would be affected by the different instructions. The variable was educational level, but in this case it was attached to the teacher descriptions being appraised.

Correlational Study

We asked some or all of the subjects of six of our samples--North Carolina, N=310 and 387; Michigan, N=100; New York, N=151; Long Island, N=298; Indiana, N=159--to supply information on years of teaching experience, sex, and level of teaching (elementary or high school). We then correlated each of these variables with ESA, ESB, TCA, and TCB. ES-VI and ES-VII were used for ESA and ESB; TC-I and TC-VIII were used for TCA and TCB. The results are given in Table IX-1. The correlations involving sex and level of teaching are point-biserial coefficients; those involving teaching experience are ordinary product-moment r's.

Inspection of the data of Table IX-1 shows that only 18 of the 72 r's are statistically significant. This is about the number of r's to be expected by chance (at the .05 level). Moreover, there is no consistency to be observed. It is fairly safe to conclude that there are no systematic relations in these data between educational attitudes and teacher trait perceptions and years of teaching experience, sex, and educational level.

Experimental Manipulation of Instructions

It struck us that subjects might judge teacher characteristics differently at different levels of instruction. We thought that the attitude-perception relation would hold up no matter what the level but that it might take different forms at different levels. Our instructions for the TC scales had always been general, that is, we had instructed subjects to think of all teachers and not just elementary teachers, for example. What would happen, however, if we specified the levels of instruction, namely elementary and secondary?

It will be recalled that ES-VII, TC-VIII, and HT-III were administered to 428 teachers and graduate students of education in North Carolina. Since TC-VIII was not really used in this experiment, we henceforth discuss only ES-VII and HT-III.[2]

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[2] Although we did our experiment using TC-VIII, the data obtained are actually not directly relevant to the present

Table IX-1

Correlations Between ES and TC Measures and Years of Teaching Experience, Sex, and Teaching Level (Elementary and Secondary): North Carolina, Michigan, New York, Long Island, and Indiana Samples[a]

	ESA		ESB		TCA		TCB	
Exper.	.01	.20*	.13	.05	.11	.16*	.17*	.22*
	-.08	-.02	-.11	.07	.13	.12	-.05	.16*
	-.26*	.03	.24*	.12	-.17	.20*	.15	.18
Sex	.09	.03	-.11	-.09	.01	-.08	-.02	-.10
	-.03	-.17*	.06	.01	.00	-.18*	.05	-.01
	.17	-.18	.12	.21*	.11	-.19	.35*	.16
Level	.04	.06	-.20*	-.16*	.08	-.03	-.21*	-.13*
	-.01	-.13	-.03	-.01	-.15	-.19*	.08	.04
	-.08	-.05	-.00	.31*	-.05	-.10	.06	.17

[a] The samples and *N*'s of the six *r*'s in each cell (read down the columns and from left to right) are: North Carolina, 310; Michigan, 100; New York, 151; North Carolina, 387; Long Island, 298; Indiana, 159. The first *r* in each cell was derived from ES-VI and TC-I; the other five *r*'s were derived from ES-VII and TC-VIII. *: significant at the .01 level (approximate only). Sex and Level *r*'s are point-biserial coefficients.

HT-III had three types of instructions: General, Elementary, and High School. The General instructions were the same as usual. The Elementary and High School instructions were identical except that in the former the words "elementary" or "elementary schools" were used, whereas in the latter the words "high school" or "high schools" were used. The three types of scales were interspersed at random and administered to graduate education classes. The numbers of subjects who got each of the instruction types were: General=198; Elementary=116; High School=112.[3]

Our expectations were complex and not too clear. With the General instructions we expected about the same numbers of hits and no-hits as we obtained with other samples (see Chapter VII). With the Elementary instructions, however, we expected that the A (person-oriented) descriptions would be chosen more than the B (task-oriented) descriptions by both educational progressives and traditionalists. We also thought that the A descriptions, while "overchosen" by all subjects, would be more "overchosen" by High ESA's than the B descriptions would be chosen by High ESB's. Conversely, we thought that under the High School instructions the B descriptions would be chosen proportionately more often than the A descriptions by all subjects. We did not quite know what to expect of the attitude High choices, but we suspected that the ESB Highs would choose more B descriptions than the ESA Highs would choose A descriptions. In other words, we anticipated ("hoped" is a better word) that there would be an interaction between instructions (levels) and attitudes.

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purpose. We had no basis, for example, for predicting different magnitudes of correlation between the ES and TC scores. We did want to see if there would be mean differences between the different instructions, however. Analyses of variance showed that there were no such differences. In fact, we used these data in other analyses (see Chapters VII and VIII) as though the instructions were the same as usual. See Footnote 14, Chapter VII.

[3] The discrepancy between the total here of 426 and the original 428 is due to our random elimination of two cases. A minor error in a computer program written by the senior author made it impossible to analyze a sample with an odd number of cases. Therefore one case was eliminated from each of the two subsamples. The reason for the larger number of cases in the General group was due to a clerical error. Fortunately, neither of these errors affected the data very much.

The basic data are presented in Tables IX-2, IX-3, and IX-4. They are the same sort of tables that were used with the HT analysis in Chapter VII. Examination of the data of Table IX-2 shows that the results are like those of ES-VII and HT-III of Chapter VII, except that the *A* relation is weaker. (See Tables VII-10 and VII-11. Table VII-12 gives the data for the whole present sample analyzed as though all the instructions were General. See Footnote 14, Chapter VII.) The Elementary instruction data of Table IX-3, however, are quite different. We see that, as predicted, the *A* descriptions are chosen more often than the *B* descriptions. (Compare the proportions of hits of .34 and .18, ignoring Highs and Lows, at the bottoms of the subtables.) In addition, the ESA Highs obtain more hits than the ESB Highs (the proportions are .41 for *A* and .29 for *B*). These results are similar to those obtained with earlier samples and the usual instructions (see, for example, Tables VII-10 and VII-11).

The data of Table IX-4, High School instructions, are a nice contrast. Here the proportions of hits, disregarding Highs and Lows, are reversed: .22 for *A* and .29 for *B*. In addition, the ESA High and ESB High proportions are also reversed: .25 and .37. The instructions have evidently made a difference. This is the interaction between attitudes and instructions that we "predicted."

We have tried to summarize these results in Table IX-5. The first three data lines of the table are the proportions of hits that we just reported; the last data line, labeled IA, gives the indices of association, described in Chapter VII, obtained by subtracting the proportions of Low hits from High hits. The Total data line proportions express the relative strength or pull of the *A* and *B* descriptions.

First, look at the Total data line and note the interaction of Instructions and the *A* and *B* descriptions. With the Elementary instructions the *A* descriptions are stronger; with the High School instructions the *B* descriptions are stronger, though not much stronger.

The High data line of the table tells more about the interaction of attitudes and instructions (levels) discussed earlier: essentially the same story as the Total line except that the interaction is clearly stronger. If we subtract, in each case, HTB from HTA, we obtain: .41 - .29 = .12, and .25 - .37 = -.12. (This is like studying interaction in the analysis of variance.) We need not spend much time on the Low data line: under the High School instructions, the proportions are almost equal; under the Elementary School instructions, the HTA proportion is considerably greater than the HTB proportion.

Table IX-2

ES-VII and HT-III: χ^2 Analyses, General Instructions, North Carolina Sample, N=198

A

	Hit	No-Hit
ESA-Hi	29 (.29)	70 (.71)
ESA-Lo	18 (.17)	82 (.83)
	46 (.23)	152 (.77)

χ^2=103.000 (.001)

B

	Hit	No-Hit
ESB-Hi	36 (.36)	63 (.64)
ESB-Lo	18 (.17)	82 (.83)
	53 (.27)	145 (.73)

χ^2=164.790 (.001)

Table IX-3

ES-VII and TC-VIII: χ^2 Analyses, Elementary School Instructions, North Carolina Sample, *N*=116

	A			B	
	Hit	No-Hit		Hit	No-Hit
ESA-Hi	24 (.41)	34 (.59)	ESB-Hi	17 (.29)	41 (.71)
ESA-L	15 (.26)	43 (.74)	ESB-Lo	4 (.07)	54 (.93)
	39 (.34)	77 (.66)		21 (.18)	95 (.82)
	χ^2=149.600 (.001)			χ^2=48.277 (.001)	

Table IX-4

ES-VII and HT-III: χ^2 Analyses, High School Instructions, North Carolina Sample, N=112

	A			B	
	Hit	No-Hit		Hit	No-Hit
ESA-Hi	14 (.25)	42 (.75)	ESB-Hi	21 (.37)	35 (.63)
ESA-Lo	11 (.20)	45 (.80)	ESB-Lo	12 (.21)	44 (.79)
	25 (.22)	87 (.78)		33 (.29)	79 (.71)
	χ^2=44.864 (.001)			χ^2=106.514 (.001)	

Table IX-5

ES-VII and HT-III; Proportions of Hits, High and Low ES Groups; General, Elementary, and High School Instructions; North Carolina Sample[a]

ES Groups	General (N=198)		Elem. (N=116)		H.S. (N=112)	
	HTA	HTB	HTA	HTB	HTA	HTB
High	.29	.36	.41	.29	.25	.37
Low	.17	.17	.26	.07	.20	.21
Total	.23	.27	.34	.18	.22	.29
IA	.12	.19	.15	.22	.05	.16

---

[a] HTA and HTB: types of descriptions; High and Low: High ESA, Low ESA, High ESB, Low ESB; Total: proportions of hits disregarding the High and Low categories; IA=Index of Association=High proportion minus Low proportion. Note: In each case, the proportion reflects the prediction from ESA to HTA or ESB to HTB. "High" therefore means High A or High B, depending on whether the column heading is HTA or HTB.

In some respects, the last data line, IA (Index of Association), is the most interesting because it expresses the basic relation of the study and also shows the interaction between educational attitudes and instructions (levels). Since IA is the remainder after the Low hit proportion has been subtracted from the High hit proportion, it expresses the relation between attitudes and perceptions, after removing the presumed desirable pull of the positive adjectives. We see that the relations between ESA and HTA and between ESB and HTB under the Elementary instructions are both substantial (.15 and .22), but that the _B_ relation is a little larger than the _A_ relation.[4]

The same difference under the High School instructions is a bit larger (.16 versus .05). If we can take the differences at face value, we can say that under the Elementary School instructions the relation between attitudes and perceptions (choices) holds for progressive attitudes and person-oriented perceptions _and_ for traditional attitudes and task-oriented perceptions. Under the High School instructions, on the other hand, the relation holds for traditional attitudes and task-oriented perceptions but practically disappears for progressive attitudes and person-oriented perceptions.

To sum up the results of this rather complicated--and, it must be confessed, somewhat impressionistic--analysis, the hypothesized relation between educational attitudes and perceptions of desirable teacher characteristics holds up under varying instructions. It holds up under general instructions in which subjects are directed to teachers in general. It also holds up under elementary school teacher instructions and under high school teacher instructions. But under these specialized instructions the magnitude of the relations change: the presumed influence of educational attitudes is stronger on the person-oriented perceptions under the elementary teacher instructions, while the presumed influence of attitudes on the task-oriented perceptions is stronger under the high school teacher instructions.

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[4] We know of no way to test for statistical significance the differences between these proportions due in part to the somewhat questionable way in which the data were analyzed. We refer particularly to the dichotomizations of the independent variables, ESA and ESB. (See Footnote 9, Chapter VII.) The above remarks, therefore, must be considered as only suggestive.

Attitude Factor Variables

From Chapter V it will be recalled that with the ES-VI data eight factors were extracted, rotated obliquely, and interpreted. If, instead of simply calculating the correlations between ESA and ESB, on the one hand, and TCA and TCB, on the other hand, we treated the factors as variables and calculated the correlations between them and TCA and TCB, will we be able to increase the magnitude of some of the correlations? Will we be able to determine the relative predictive powers of the various subfactors (first-order factors) of the broader educational attitude dimensions?

Recall, too, that of the eight factors four were *A* (progressivism) factors and three were *B* (traditionalism) factors. Thus we have seven factors to work with. (One factor was unnamed. It had only two items.) But some of these factors had very few items. Thus they would, as predictors, be unreliable. We decided, therefore, to combine some of the factors on the basis of numbers of items and, more important, the correlations between the factors. Of the *A* factors, we combined the items of Factors II and IV, *r*=.40, and III and VII, *r*=.46, making *A* subscales of 11 and 8 items. Of the *B* factors, we combined I and V, *r*=.38, 11 items. We used Factor VII as it was since it had 9 items. The factors we used, both combined and uncombined, the numbers of items in the factors and the newly created variables, and the correlations between the factors (from Table V-4) that were combined are given in Table IX-6 (left side of table).

The ES-VI and TC-I data of the North Carolina, *N*=404, Texas, *N*=480, and Wisconsin, *N*=218, samples were analyzed. Because of the necessarily lowered reliabilities of the subscales, the correlations were corrected for attenuation. The correlations between the *A* factors and TCA and between the *B* factors and TCB, the same correlations corrected for attenuation, and the reliabilities of the subscales are reported in Table IX-7. The original correlations between ESA and TCA and between ESB and TCB are also reported for comparison purposes. (They are labeled "Orig." Note, too, that the original reliabilities of the ES and TC measures, i.e., the reliabilities of the full scales, and the original correlations corrected for attenuation are also reported in the "Orig." columns.)

Study of Table IX-7 shows that there was not much point in the rather elaborate analysis. If we compare both the raw factor correlations and the factor correlations corrected for attenuation with the original correlations between the ES and

TC measures, we see that the latter are usually larger. In only one case, the Wisconsin B measures, is a raw factor correlation larger than an original correlation, and when three of the correlations corrected for attenuation are larger, the differences are only .03, .03, and .12.

We followed a somewhat similar procedure with the ES-VII and TC-VIII data. The main difference in procedure, however, was that we used an orthogonal four-factor solution. We correlated each of the four factors with its matching TC score. That is, of the 15 original ESA items, we found that 10 of these appeared on one factor and the remaining five on another factor. Of the 15 original ESB items, seven loaded on one factor and seven on another. Each individual's responses to these sets of items were summed to form sets of two ESA factor scores and two ESB factor scores. We also corrected these correlations for attenuation.

The coefficients of correlation, so calculated, and the original correlations are presented in Table IX-8. The coefficients of these correlations corrected for attenuation, the reliabilities of the factor scores, and the original coefficients corrected for attenuation and the original reliabilities are also given in the table. It is again obvious that all the trouble taken was for nothing. In no case does a raw factor correlation equal or exceed an original correlation. In one case only does a corrected correlation equal or exceed an original corrected correlation, and the difference is only .01.

We suspect that no other combinations of item scores would improve the situation. Perhaps our original subscales are as efficient as any subsets of the items (for the present purpose). These results are not too strange, of course. The original items of ES-VI and ES-VII were chosen, in part, by factor analysis, and the first-order factors have been shown to be related to each other. In any case, we drop this line of investigation with some disappointment.

Response Set Variables

It has been said that various forms of response set are a threat to the validity of studied relations, especially when summated-rating scales are used (Bass, 1956; Cronbach, 1946; Edwards, 1957; Jackson and Messick, 1958; Peabody, 1961). The importance of response set has also been disputed (Rorer, 1965). Nevertheless, we think it wise to offer some evidence of the possible effects of some of the important sources of

Table IX-6

Factors of ES-VI and ES-VII Used in Correlations Between ES Factors and TCA and TCB

	ES-VI				ES-VII	
	Factors	No. Items[a]	*r*[b]		Factors	No. Items
A:	II + IV	6 + 5=11	.40	*A*:	I	10
	III + VII	3 + 5=8	.46		III	5
B:	I + V	8 + 3=11	.38	*B*:	II	7
	VII	9			IV	5

[a] See Table V-4 for the items of the different factors of ES-VI. The items of ES-VI, using the item numbers from the scale itself (see Appendix), are: I: 3, 4, 9, 10, 12, 14, 15, 18, 21, 22; III: 23, 24, 26, 29, 30; II: 6, 7, 8, 17, 25, 27, 28; IV: 1, 2, 5, 16, 20.

[b] *r*: correlations between factors, e.g., the correlation between Factors II and IV is .40.

Table IX-7

Factor Correlations: ES-VI Factors to TC-I A and B measures; North Carolina, Texas, and Milwaukee Samples[a]

	A			B			
	II+IV	III+VII	Orig.	I+V	VI	Orig.	$r_{.01}$
No. of Items	11	8	23	11	9	23	
N.C., N=404:							
r	.18	.23	.23	.31	.38	.39	.13
r_a	.22	.32	.29	.43	.51	.48	
r_{tt}	.74	.59	.80	.74	.73	.83	
Tex., N=480:							
r	.01	.23	.30	.17	.19	.24	.12
r_a	.01	.32	.36	.23	.27	.30	
r_{tt}	.77	.64	.83	.76	.67	.82	
Wisc., N=218:							
r	.18	.23	.27	.30	.43	.35	.18
r_a	.23	.32	.35	.41	.56	.44	
r_{tt}	.68	.62	.78	.74	.75	.83	

[a] r: factor correlations; r_a: correlations corrected for attenuation; Orig: original statistics; r_{tt}: alpha reliability coefficients; $r_{.01}$: correlation significant at the .01 level. The ESA factor subscales are correlated with the TCA measures, and the ESB factor subscales are correlated with the TCB measures.

Table IX-8

Factor Correlations: ES-VII Factors to TC-VII *A* and *B* Measures, Long Island and Indiana Samples[a]

	A			*B*			
	I	III	Orig.	II	IV	Orig.	$r_{.01}$
No. of Items	10	5	15	7	7	15	
L.I., *N*=298:							
r	.37	.27	.40	.28	.36	.39	.15
r_a	.45	.35	.50	.35	.50	.49	
r_{tt}	.80	.63	.79	.77	.61	.78	
Ind., *N*=159:							
r	.27	.22	.29	.32	.28	.38	.21
r_a	.36	.29	.40	.42	.40	.52	
r_{tt}	.75	.68	.76	.71	.57	.69	

[a] For key to symbols and explanation of table, see Table IX-7.

response set: social desirability (Edwards, 1957); social acquiescence (Bass, 1956); and agreement response (Couch and Keniston, 1960).

Before this study began, the senior author administered ES-I, Edwards' (1957) Social Desirability Scale (SD), Bass' (1956) Social Acquiescence Scale (SAQ), Couch and Keniston's (1960) Agreement Response Scale (AR), Wonderlic's (1961) brief intelligence test, the F Scale (Adorno, et al., 1950), the D Scale (Rokeach, 1960), a scale to measure general social attitudes (SA) constructed by the senior author (unpublished), and other scales to 161 graduate students of education. We use some of the data from this study here and later in the chapter.

The data obtained with ES-I, A and B, and the three response set measures are given in the first three data lines of Table IX-9. The results are a little surprising. The correlations between ESA and SD and ESB and SD are not significant. Evidently ES-I has little relation to social desirability. Both ESA and ESB, however, are significantly correlated with SAQ, one, ESA, just barely significant at the .05 level, the other, ESB, significantly (.01 level) and rather substantially. It seems clear that traditional educational attitudes and social acquiescence share something in common. Before going further, note that the correlation between ESA and AR is practically zero, but that between ESB and AR is statistically significant ($p < .01$), if moderate (.30).

Evidently we have little to fear from these three forms of response set with ESA. But how about ESB? Accepted at face value, we have something to fear. We do not really believe, however, that the significant correlations of ESB and SAQ and ESB and AR are caused by response set. We believe, rather, that some variable like conservatism underlies ESB, SAQ, and AR. While we cannot now give highly convincing evidence of this belief, we can cite a factor analysis of the measures mentioned above.

The first and evidently most important factor (orthogonal rotations; 43 percent of the common factor variance) of the analysis had the following variables and loadings, among others, on it: Conservatism, .86; F Scale, .82; Rokeach's Opinonation-Right, .71; Social Acquiescence, .66; Rigidity, .63; D Scale, .49; and ESB, .49. One can hardly call this a response set or social acquiescence factor. It is obviously some sort of conservatism or authoritarianism factor. This evidence, we believe, is sufficient to invalidate a social acquiescence interpretation. We might add, too, that SD and AR were both

Table IX-9

Correlations Between ES-I and Response Measures and F and D Scales, N=161[a]

	ESA	ESB
SD	-.06	-.11
SAQ	-.18*	.40**
AR	.01	.30**
F	-.23**	.49**
D	-.06	.38**
Intell.	.07	-.17*

[a] *: $p < .05$; **: $p < .01$. SD=Social Desirability; SAQ=Social Acquiescence; AR=Agreement Response; F=F Scale; D=D Scale; Intell.=Wonderlic Test.

loaded on a second factor and that neither ESA nor ESB had appreciable loadings on this factor. In other words, from this evidence we can feel that the validity of ES-I--and, we hope, the other ES scales--is not really challenged by response set weakness, at least of the kind measured in this study.

Because we wanted to test the stability of the relations just reported, and because we also wanted to see what the correlations between the response set and TC measures would be like, we administered ES-VI, TC-I, and the three response set measures, SD, SAQ, and AR, to another sample of 94 graduate students of education. The results are reported in Table IX-10.

The first thing to do is to study comparable r's in Tables IX-9 and IX-10. The r's between ESA and ESB and SD are the same in the sense that they are not significant. The r's of ESA and ESB and SAQ are also the same: that between ESA and SAQ is not significant, but that between ESB and SAQ is significant and alike in both samples, .40 and .38. The parallel breaks down, however, with the ES and AR measures: the ESA and AR r's are not significant in both samples, but the ESB-AR r is significant and positive in the earlier sample and almost zero in the later sample. We have no explanation for this last discrepancy. We can safely say that the relations are stable, with this one exception.

Of the r's between TCA and TCB and the three response set measures, only one, that between TCB and SAQ, is significant. We think the earlier explanation of what may be common to acquiescence, traditional educational attitudes, conservatism, authoritarianism, and dogmatism is also applicable here. In general, then, we can feel fairly well assured that response set as reflected in the SD, SAQ, and AR scales seems not to contaminate our ES and TC measures.

Other Measures of Educational Attitudes

A weakness of the work done in developing the scales to measure attitudes toward education was a lack of study of the relations of ESA and ESB to other measures of educational attitudes. Until recently (see below), there were no such measures that we could really consider to be criterion measures. The best-known such measure was the Minnesota Teacher Attitude Inventory, or MTAI (Cook, Leeds, and Callis, 1951). We were not satisfied with this instrument, however, since it seemed to us theoretically and psychometrically faulty. More important, its items appeared to be a progressive and traditional mixture. To score the scale as recommended is to confound the

Table IX-10

Correlations Between ES-VI, TC-I, and Response Set Measures, _N_=94[a]

	ESA	ESB	TCA	TCB
SD	.10	.06	.03	.08
SAQ	.09	.38**	.14	.29**
AR	.02	.05	-.15	-.09

[a]**: $\underline{p} < .01$.

two dimensions. (See Getzels and Jackson, 1963.) The research evidence to be cited shortly will show, we think, the validity of this criticism.

Two other instruments that measure attitudes toward education are the Teacher Preference Schedule (TPS), Form A (Stern, et al., 1960) and Oliver and Butcher's (1962) interesting scale. We did not use the Oliver and Butcher scale because we were unable, from the materials we had, to score and interpret it properly. We did use the Stern TPS. Although presumably a measure of unconscious motives for teaching, it is actually a measure of attitudes toward education, as we shall see.

ES-VII, TC-VIII, and the MTAI were administered to 100 graduate students of education in eastern Michigan.[5] As usual, the responses to the scales were intercorrelated. The correlations are given in Table IX-11.

The correlations between ESA, ESB, TCA, and TCB are like those reported earlier. We need not dwell on them. They show that the ES and TC results from this sample are like those of other samples. The important correlations are of course those in the MTAI column. The first two, ESA and ESB with MTAI, are .53 and -.63. They seem to show that ES-VII and the MTAI have much in common. They also show that the MTAI probably has both progressivism and traditionalism in it but that the scoring obscures this. If ES-VII and the MTAI are both measures of educational attitudes, then they should both correlate about the same with the TC-VIII measures, making due allowance for the MTAI scoring. The MTAI correlations with TCA and TCB are .35 and -.26. These *r*'s are approximately the same magnitude as the ES-VII and TC-VIII *r*'s.

While this is not very strong evidence of the validity of ES-VII because of the questionable quality of the MTAI, it is still evidence that is consistent with all the demands of the particular situation. The MTAI correlates substantially with ES-VII and predicts TC-VIII about as well as ES-VII.[6]

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[5] These subjects were part of the Michigan sample whose data were reported in Chapter VII.

[6] We had intended factor analyzing the items of the MTAI in order to test our duality hypothesis, but the results of such an analysis did not seem to be worth the effort. In judging the statement made above about the MTAI predicting TC as well as ES-VII, bear in mind that the MTAI has 150 items and ES-VII 30 items.

Table IX-11

Correlations Between ES-VII, TC-VIII, and MTAI Scales,
Michigan Sample, N=100[a]

	ESB	TCA	TCB	MTAI
ESA	-.26	.32	-.26	.53
ESB		-.17	.33	-.63
TCA			.13	.35
TCB				-.26

[a] r=.20, significant at the .05 level; r=.25, significant at the .01 level.

The Stern TPS (attitude form) is a better candidate for scientific study than the MTAI. It is based on role conceptions, the roles springing from the personality needs and motives of the teacher. The motives, or "roles"--Practical, Nurturant, Orderly, Dominant, and the like--imply certain "attitudes," or stances--Detachment, Providing Love, Developing Good Pupil Habits, Maintaining Discipline, and the like. (The four "attitudes" just given spring from the "roles" given.) In any case, the TPS items seem clearly to be attitude items similar to the ES items except that they are specifically tied to beliefs about teachers and their behavior. The big difference between the construction of the TPS and the MTAI is that the construction of the TPS was at least partly theoretical whereas the MTAI's construction was almost purely pragmatic and atheoretical (Getzels and Jackson, 1963, p. 521).

It seemed to us that some of the roles of the TPS could be inferred from the broader progressivism and traditionalism dimensions. Nurturant and Nondirective, for example, express notions closely related to progressive notions of a teacher's function and behavior. (See Stern, et al., 1960, pp. 13-14, for brief descriptions of the roles.) On the other hand, Orderly and Dominant seemed to express traditionalist notions of the teacher's role. Study of the items of these categories strengthened this belief. For example, here are two items, the first Nondirective and the second Orderly. Note that the first carries a flavor of our progressive items, while the second is like our traditionalist items.

> The best teacher is usually one who allows the most freedom in the classroom.
>
> It is impossible to manage either a school or classroom without having a carefully detailed system of rules and regulations.

On the assumption that the Nurturant and Nondirective roles expressed facets of progressivism and the Orderly and Dominant roles of traditionalism, we incorporated the 10 items of each of these categories into a 40-item scale. The four kinds of items were interspersed at random in the scale. The response system used was the same that we used with the ES scales: seven-point summated ratings. (Stern, et al. used a six-point scale.) We derived two scores, A and B, from the scale responses by combining Nurturant and Nondirective for A and Orderly and Dominant for B.

ES-VII, TC-VII, and this form of the TPS were administered to 210 graduate students of education and teachers in eastern

Table IX-12

Correlations Between Stern TPS Measures and ES and TC Measures, Michigan Sample, $\underline{N}=210$[a]

	ESA	ESB	TCA	TCB	$\underline{r}_{\underline{tt}}$[b]
TPSA	.53	.00	.20	-.08	.77
TPSB	-.36	.62	-.27	.35	.84

[a] $\underline{r}=.18$, significant at the .01 level.

[b] $\underline{r}_{\underline{tt}}$: alpha reliability coefficients.

Michigan. The correlations between ESA, ESB, TCA, TCB, TPSA, and TPSB are given in Table IX-12. The alpha reliability coefficients of TPSA and TPSB are also given in the table.

The results are quite clear-cut. TPSA and TPSB correlate positively and substantially with ESA and ESB: .53 and .62 (corrected for attenuation: .68 and .78). These _r_'s support our beliefs about the relation between the ES items and the TPS items and about the relation between the roles and progressivism and traditionalism.[7] The TPS-TC _r_'s, too, are very similar to ES-TC _r_'s. The _A_ to _A_ _r_ is .20, and the _B_ to _B_ _r_ is .35.

Assuming the validity of the TPS, then, we have evidence of the concurrent validity of ES-VII. We also have, in the TPS-TC _r_'s and the ES-TC _r_'s construct validity evidence. The latter _r_'s, of course, also support the basic hypothesis of the study on the relation between educational attitudes and perceptions of teacher characteristics.

Miscellaneous Variables

In this section we report the results of our efforts to learn more about the correlates of our independent and dependent variables. We must confess, however, that we operated on little more than vague hunches and hope. We now set out these hunches, describe what we did to test them, and then give the results. In addition, we report the results of some earlier research with three standard variables: intelligence, authoritarianism, and dogmatism.

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[7] We also factor analyzed the intercorrelations of the 40 items of the TPS, using the principal axes method and Varimax rotations. The results were very similar to the results of factor analyses of ES-VI and ES-VII. Most important, in a "forced" two-factor solution, most of the Nurturant and Nondirective items were loaded on one factor and most of the Orderly and Dominant items were loaded on the other factor. In addition, the results of a second-order factor analysis in which the ES-VII and TPS items were combined yielded two second-order factors. These factors were clearly the _A_ and _B_, or progressivism and traditionalism, factors of earlier analyses.

Authoritarianism, Dogmatism, and Intelligence

As indicated earlier, ES-I and the F Scale and the D Scale were administered to 161 graduate students of education. The Wonderlic brief test of intelligence (Wonderlic, 1961) was also administered to these subjects. The results are given in Table IX-9. It is clear that there is little correlation between intelligence, as measured, and educational attitudes. ESA and the Wonderlic correlate .07 (not significant). The correlation between ESB and the Wonderlic is significant ($\underline{p} < .05$), negative, but quite low.

Authoritarianism and educational attitudes, however, are related. The ESB and F Scale $\underline{r}$ is significant at the .01 level and fairly substantial, .49. Educational traditionalists tend to be authoritarian, if we believe this correlation. The correlation between ESA and authoritarianism, on the other hand, while negative and significant at the .01 level, is considerably lower, -.23. The more progressive individuals tend to be less authoritarian, as might be expected. Traditional educational attitudes and dogmatism are moderately and positively correlated, .38. There appears to be little relation between progressive educational attitudes and dogmatism, -.06.[8]

Although we have hunches about the sources of these correlations, they are very tentative indeed. Earlier in this chapter we expressed the belief that conservatism perhaps underlies the common factor variance of traditional educational attitudes, social acquiescence, and agreement response. At that time we presented the results of a factor analysis that showed that conservatism, authoritarianism, dogmatism, social acquiescence, rigidity, and educational traditionalism were loaded on the same factor. Let us now present some evidence obtained more recently and specifically for this study.

Social Attitudes, Educational Attitudes, and Perceptions of Teacher Characteristics

Although we are of course interested in the relations between educational attitudes and general social attitudes, our main interest is expressed by the question, What is the effect of social attitudes on the relation between educational attitudes and perceptions of desirable traits of teachers? We would not want to be able to predict too successfully to perceptions of teacher traits from social attitudes. Our research problem demands that the lion's share of predictive power should belong to educational attitudes.

---

[8] We shall see that one of the doctoral studies to be described in Chapter X also found the correlation between progressivism and dogmatism to be close to zero.

ES-VII, TC-VIII, and a scale constructed to measure social attitudes (SA) were administered to 190 graduate students of education in eastern Michigan. The SA Scale, a seven-point, 26-item, summated-rating instrument, was constructed on the basis of item and factor analysis of an original 40-item scale. The items of the original scale were selected from a pool of items taken from the literature and edited or specially constructed for the purpose. There were 20 Liberalism (SAL) items and 20 Conservative (SAC) items, the designations, of course, depending on item content and known liberal and conservative issues and opinions. Political, economic, religious, and general social items were included. On the factor analysis of the original scale, to which 666 graduate students, undergraduate students, and people outside the university had responded, the liberal and conservative items loaded on different factors. Item-total correlations were also calculated. The 26-item scale used in this study, consisting of 13 liberalism and 13 conservatism items, was then constructed on the basis of factor loadings and item-total r's. Assuming that the liberalism factors were positively correlated and similarly for the conservatism factors, two SA scores were calculated for each subject: SAL, the mean of the 13 liberalism items, and SAC, the mean of the 14 conservatism items.[9]

The correlations among the social attitude measures and the educational attitude and teacher perception measures are given in Table IX-13. The reliabilities of the SAL and SAC subscales are also given in the table. The correlations in the table are not uniform. Liberalism only correlates significantly with ESA; with ESß and both TC measures the r's are near-zero. Conservatism, however, correlates significantly, both positively and negatively, with all four educational

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[9] A subsequent second-order factor analysis of the data of the 40-item scale, N=666 (see Kerlinger, 1967a, pp. 118-119), showed that there were two second-order factors, one associated with the liberalism first-order factors (and items) and one associated with the conservatism first-order factors. Thus the assumption mentioned above was strengthened by rather strong evidence. The 26-item SA Scale used in this study can be found in Shaw and Wright's (1967) anthology of attitude scales (pp. 323-324).

Table IX-13

Correlations Between Social Attitude Measures and ES and TC Measures, Michigan Sample, *N*=190[a]

	ESA	ESB	TCA	TCB	r_{tt}[b]
SAL					
SAL	.27	.06	-.01	.07	.76
SAC	-.25	.50	-.24	.25	.72

[a] *r*=.19, significant at the .01 level.

[b] r_{tt}: alpha reliability coefficients.

variables. The positive and significant r's between SAL and ESA and between SAC and ESB are what we might expect since it is possible to conceive educational attitudes as a form of general social attitudes (Smith, 1963). Indeed, it would be strange if SAL and ESA and SAC and ESB did not correlate positively. The magnitudes of SAC-ESA and SAC-TCA negative r's, -.25 and -.24, are not too surprising, though we would have preferred them to be lower.

The important r's in Table IX-13, however, are those between the SA and the TC measures. It is apparent that SAL does not correlate with TCA. But SAC does correlate significantly with TCB. On a pure theoretical basis, we would not expect either SAL or SAC to correlate significantly with TCA and TCB since our research case depends upon significant correlations between the ES and TC and not between the SA and TC measures. But we can see from the table that SA and ES correlate significantly. The case of SAL and TCA is clear. How about SAC and TCB, then? One way to determine whether the ESB-TCB correlation is vitiated by the SAC-TCB correlation is to use partial correlation. If we calculate the r between SAC and TCB with ESB partialed out we obtain r=.11. If, on the other hand, we calculate the r between ESB and TCB with SAC partialed out we obtain .33. The original r between ESB and TCB was .36.[10] *It seems, then,* that the important correlation between ESB and TCB is hardly affected by partialing out SAC, but the correlation between SAC and TCB is very much lowered by partialing out ESB. At this point, we do not try to explain the significant negative correlations between SAC and ESA and TCA except to note again, as we did earlier, the possible pervasive influence of conservative attitudes.

Measures of Cognitive Style

We felt, since the dependent variable of this study was a perceptual or judgmental variable, that we should try to explore the relations between what can be called "legitimate" perceptual variables and educational attitudes and perceptions of desirable teacher characteristics. As usual, we were particularly interested in the relation between educational attitudes and teacher trait perceptions and how more purely perceptual measures--or measures of cognitive style--might affect this relation.

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[10] It should be noted that this r was calculated from the total Michigan N of 400. Thus the calculations of the partial r's is somewhat questionable. Nevertheless, it is the only way we know to test the difference in r's.

To this end, we administered ES-VII, TC-VIII, two of Thurstone's (1944) perceptual measures, Social Judgment-Word Association (SJWA), and Social Judgment-Pair Comparisons (SJPC), Pettigrew's (1958) Category Width Scale (CW), and Jackson's (ETS, 1961; Jackson, Messick, and Myers, 1964) shortened version of the Embedded Figures Test (EFT).

Both social judgment scales presumably measure a social-human inclination versus a literal-physical inclination. The pair-comparisons form, SJPC, consisted of 20 pairs of adjectives, like courteous-accurate and lazy-stingy. Subjects were asked to select that adjective from each pair that they considered the more desirable. They were urged to go rapidly. Unlike Thurstone's original time limit of one minute, we gave a three-minute time limit, in effect removing limit. The scoring was the number of social adjectives chosen.

The word association scale (SJWA) consisted of 23 adjectives so selected that social and other responses could be given.[11] For example, lead could be responded to with men, a social response, or pipe, a non-social response. The scoring was the number of social responses.

Pettigrew's (1958) Category Width Scale (CW) has 20 items. Each scale item consists of two sets of four choices each. Subjects are asked to guess the most and the least about a number of phenomena. Its format and substance are best understood through an example. Here is one of the items:

6. It has been calculated that the average time for all trains in 1953 from New York City to Washington, D.C. was 285 minutes (4 hours and 45 minutes). What do you think:

a. was the time of the slowest train from New York City to Washington in 1953 . . .

1 1. 337 minutes
0 2. 304 minutes
2 3. 396 minutes
3 4. 483 minutes

b. was the time of the fastest train from New York City to Washington in 1953 . . .

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[11] The original scale had 28 items. We deleted five of these because the words were more complex than the rest of the words and seemed to us to lack adequate response potential.

1 1. 236 minutes
2 2. 202 minutes
0 3. 268 minutes
3 4. 145 minutes

The scoring is of the rank-order kind. The ranks have been inserted before the choices of the above item. If a subject chooses the highest value of the four responses in the item (483 minutes), he is assigned a 3. If, however, he should happen to choose the lowest value (304 minutes), he is assigned a zero. A subject's score is the sum of the scores assigned his choices. In order to reduce scale administration time we reduced the scale to the 12 best items using Pettigrew's published analysis to determine the best items. The items we used were Numbers 1, 2, 3, 5, 6, 11, 13, 14, 15, 16, 17, and 19.

The final perceptual measure we used was a short form of the Embedded Figures Test (EFT). The test, of course, is based on Witkin's original Embedded Figures Test (Witkin, 1950), which, in turn, is based on Gottschaldt's original test (Gottschaldt, 1938; Thurstone, 1944, pp. 72-76). According to Witkin, the test measures field dependence, or a field dependent (or independent) way of perceiving. Field dependent individuals are relatively unable to distinguish items from their contexts or to overcome the influences of the fields surrounding objects of perception. The EFT requires subjects to pick simpler figures out of more complex figures in which they are embedded. We used Jackson's form and instructions in administering the test.

With the exception of the CW Test, we had some reason to expect these measures to correlate with our ES and TC measures. The rationale for the Thurstone tests is simple. Since the social and human aspects of education are emphasized by progressives, we might expect a positive correlation between responses to the Thurstone scales and ESA (progressivism). We might also expect a positive correlation between the Thurstone scales and TCA (person orientation) because its adjective items seemed to express a concern for people and for person interaction--sympathetic, friendly, warm, and so on. Since the Thurstone scales are scored only for the social dimension, we were not sure what to expect of the correlations between them and ESB and TCB--perhaps negative correlations.

Pettigrew believes that the Category Width Scale measures equivalence range for categorizing objects. Individuals seem to exhibit consistent preferences for ways of categorizing objects. The CW Scale presumably measures preferences for broader or narrower categories of objects. As such, it is a measure of a form of cognitive style. Beyond a vague notion that since rigidity, a variable that appears to be cognitively similar to CW, correlates with F, D, and ESB positively, perhaps CW might correlate negatively with ESB and TCB, we had little theoretical or rational basis for expecting correlation of one kind or another with our ES and TC measures. We simply thought Category Width an interesting variable possibly related to our attitude and perception measures.

The reasoning behind the use of the Embedded Figures Test is tenuous and a bit involved. Our expectations are derived from Witkin, et al.'s (1962, pp. 2-4) discussion of the nature of field dependence. Unfortunately, predictions that are in effect opposites can be inferred from the discussion. Nevertheless, we thought it would be interesting to see which would come out. Witkin, et al. say that field dependent people are likely to change their views in the direction of authority. This might mean, then, that individuals high on EFT may also be high on ESB (traditionalism) and possibly on TCB. But Witkin, et al. go on to say that field dependent people are particularly attentive to the faces of those around them. They also say that field dependents favor occupations involving contact with people. On the other hand, they say that field independent people are able to function autonomously, some of them being isolated, cold, distant, and unaware of their social stimulus value. This tendency would seem to be contradictory to the first one: high field dependents should also be high on ESA (progressivism) and especially TCA (Person Orientation). High field independents should also be high on ESB (traditionalism) and TCB (Task Orientation).

The Embedded Figures Test is unidimensional. Therefore we expected negative correlations between EFT and ESA and TCA and positive correlations between EFT and ESB and TCB. (The test is scored in the field-independent direction. That is, an individual's score is the number of embedded figures he identifies.)

ES-VII, TC-VIII, the two Thurstone SJ scales, and the Category Width Scale were administered to 387 of the North Carolina sample (N=428) discussed earlier. ES-VII, TC-VIII, and the Embedded Figures Test were administered to 71 graduate students of education in New York.[12] The coefficients of correlation derived from these measures are given in Table IX-14. Taking first the measure for which we had little theoretical reason for predicting correlations, the EFT, we got nothing. None of the r's are significant, even though two of them, ESA and TCA, point in the right direction.

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[12] Professor Lawrence Castiglione, Queens College, administered the scales. We express our appreciation and gratitude for his help.

The SJWA Scale, too, yields nothing. (This may be in part a function of the scoring and possible unreliability. Because these measures were very tentative and exploratory, we did not take great pains training judges and the like.) The SJPC Scale, however, yields significant negative correlations between the judgmental measure and ESB and TCB, as predicted. Evidently the individuals who select literal-physical adjectives of the social judgment scale tend to be traditional in their educational attitudes and to favor the task-oriented adjectives of the teacher perception scale, but there seems to be no relation between the social judgment measure and educational progressivism and person orientation, contrary to prediction.

The results obtained with the Category Width Scale are confusing. The correlations between CW and ESB, TCA, and TCB are significant; but they are all negative. The CW-ESA r is near zero. While we had little theoretical reason for prediction we did not anticipate results like these. Had the CW-TWA r been positive, we might have attempted an ex post facto explanation of the results. Since we cannot readity conceive a common denominator of the four variables, except, possibly, social desirability, as expressed in the rather high correlation of .38 between TCA and TCB, and since we have no other evidence that might give us a clue, we do not attempt any explanation.[13]

In sum, the cognitive variables yielded little. We may be able to say that a social-human tendency is negatively correlated with ESB and TCB. Educational traditionalists tend

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[13] A partial correlation analysis of the data suggests that the r between CW and TCA may not really be of consequence. Note that the r between TCA and TCB is .38. If we calculate the r between CW and TCA partialing out ESB, the r of -.17 between CW and TCA remains the same. If, however, we calculate the correlation between CW and TCA holding TCB constant, the -.17 drops to -.08, a non-significant r. As a check, we also calculated the correlation between CW and TCB holding TCA constant. This correlation was -.23, not much of a drop from the original -.27. Evidently the CW-TCA correlation stems in good part from the positive correlation between TCA and TCB.

Table IX-14

Correlations Between ES and TC Measures and Thurstone Social Traits and Judgments, Category Width, and Embedded Figures Measures, North Carolina and New York Samples[a]

	ESA	ESB	TCA	TCB
SJWA	.03	.07	.00	.01
SJPC	.11	-.21*	.04	-.22*
CW	-.02	-.16*	-.17*	-.27*
EFT	-.15	-.03	-.16	.02

[a] *: Significant at the .01 level. North Carolina: N=387; New York: N=71. SJWA: Social Judgment, Word Associations; SJPC: Social Judgment, Pair Comparisons; CW: Category Width Scale; EFT: Embedded Figures Test.

to be task-oriented and seem to prefer literal-physical to social-human words. There appears to be no relation between field independence and educational attitudes and perceptions of teacher characteristics. There may be a negative relation between Category Width and traditional educational attitudes and between Category Width and task-oriented perceptions of teachers. These last relations, however, are in doubt because of a negative correlation between Category Width and person-oriented perceptions of teachers.

Chapter X

Related Doctoral Studies

Three doctoral studies exploring areas related to the main problems or variables of the larger study were conducted. They are summarized in this chapter. The first of these doctoral studies was guided by the second general problem of the larger study: What is the relation between attitudes toward education and perceptions and judgments of desirable teacher behaviors? The second study departed almost entirely from the original problems. It focused primarily on what was called pseudoprogressivism and its relation to assessment of teaching behavior and impressions of teacher personality. Both of these studies have been completed. The third study also departed from the original problems. It explored the relations between educational attitudes and perceived teacher roles. Although the study has not yet been completed, we are able to report one or two of the principal findings.

Attitudes Toward Education and Perceptions of Teacher Behaviors[1]

In contrast to the emphasis on perceived teacher traits, this study explored perceived teacher behaviors. In addition, the levels variable (elementary and secondary) was more important than it was in the main study. The principal question asked was: What is the effect of educational attitudes on perceptions of elementary and secondary school teacher behaviors? The following hypotheses were tested:

a. The two major persons factors "Progressivism" and "Traditionalism" that underlie attitudes toward education will emerge in the perceptions of teacher behaviors. The factor patterns will be stronger and more pronounced, however, when elementary teacher behaviors are judged than when secondary teacher behaviors are judged.

b. Among progressives, behaviors associated with interpersonal relations, social norms, subject matter, and discipline will be perceived as desirable for both elementary and secondary school teachers in the order presented. The degree of differentiation between these areas will be greater when behaviors are considered for elementary than for secondary teachers.

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[1] For a full report of this study see Sontag (1966).

c. Among traditionalists, behaviors associated with subject matter, discipline, interpersonal relations, and social norms will be perceived as desirable in the order presented. The degree of differentiation between these areas will remain constant when behaviors are considered for both elementary and secondary behaviors.

The study was conducted in two phases: phase I, a Q study; phase II, a cross-sectional study.

Phase I: Q Study

To measure the independent variable, educational attitudes, Education Scale VII (ES-VII) was used. A progressive was defined as an educator whose score on ES-VII A (progressivism) was above the median and whose score on ES-VII B (traditionalism) was below the median of norm groups measured previously with ES-VII. A traditionalist was defined as an educator whose score on ES-VII B was above the median of the norm groups and whose score on ES-VII A was below the median of the norm groups. A subject whose A and B scores were above the median of the norm groups was defined as having mixed or indeterminate attitudes.

The dependent variable, perception of teacher behaviors, was measured by an 80-item Q sort. The items in the sort consisted of short statements describing teacher behavior in the classroom in the following areas: (1) teaching-subject matter, (2) interpersonal relations, (3) authority-discipline, and (4) normative-social. These areas were drawn from an attitude Q sort used by Kerlinger (1956). Five individuals with a knowledge of educational theory and test construction served as judges in selecting items from a pool of 175 items constructed for the study or drawn from the literature (e.g., Charters and Waples, 1929; Ryans, 1960). An item was retained for the Q sort when at least four judges agreed about it being clear and concise, a classroom behavior, and a desirable behavior. In addition, items were judged to belong or not belong to the four areas mentioned above. Twenty items in each of the four categories were retained. (For a list of the items see the Appendix.)

The subjects were 80 teachers, 32 of whom had progressive attitudes, 32 traditionalist attitudes, and 16 indeterminate attitudes. These categorizations were determined by the system outlined above. By random assignment, half the subjects were asked to sort the behaviors according to their importance for elementary school teachers; the other half was asked to sort the behaviors according to their importance for high school teachers. The Q sorts were administered in an individual testing situation.

The data were analyzed in two ways. One, an analysis of variance was computed of each subject's responses to determine the significance of the difference between the perceptions of the four areas. Two, the responses of the subjects to each of the Q sorts were intercorrelated separately. This resulted in two 40 X 40 matrices. The matrices were factor analyzed with the princpal axis method and varimax orthogonal rotations. Factor arrays were computed for each analysis and the resultant arrays were intercorrelated.

Results: Elementary School Behaviors Q Sort

The factor analysis of the Q sort that was designed to measure perception of desirable teacher behaviors in the elementary school yielded four factors. Table X-1 contains the unrotated factor matrix. The rotated factor matrix and the obtained communalities (h^2) are given in Table X-2.

The factors were named on the basis of the 12 highest items on each of the factor arrays. Factor A was named "Concern for Students." This factor seems to be related to Ryans' X (understanding, friendliness, responsiveness; Ryans, 1960a, p. 106) and the A factor, person orientation, found in the factor analysis of TC-I reported in Chapter IV. Factor B was named "Structure and Subject Matter." Here again, one finds similarities between this factor and Ryans' Y factor (businesslike, systematic) and the B factor, task orientation, of the TC-I analysis. Factor C was named "Stimulating Teaching." This factor seems to resemble Ryans' Z behavior pattern (stimulating, imaginative, original). Factor D was named "Self-Control in Teaching."

Results: High School Behaviors Q Sort

The factor analysis of the Q sort that was designed to measure perceptions of desirable teacher behaviors in the high school yielded four factors. The unrotated factor matrix is reported in Table X-3. The rotated factor matrix and the obtained communalities (h^2) are reported in Table X-4.

Table X-1

Unrotated Factor Matrix of Responses to Elementary School Sort[a]

Ss	Attitude	Factor			
		I	II	III	IV
		High School Teachers			
1	A	74	38	18	-04
2	A	43	-02	14	10
3	A	64	06	-11	26
4	A	61	38	08	-34
5	A	66	29	-13	-18
6	A	80	-18	-03	-09
7	A	60	25	-18	-20
8	B	28	-25	06	-35
9	B	54	-39	-31	-14
10	B	72	14	30	08
11	B	53	-18	13	-37
12	B	54	-28	-28	29
13	B	55	-01	-14	-05
14	B	03	02	-56	-20
15	AB	50	12	17	-23
16	AB	65	-33	03	05
17	AB	75	09	05	10
18	AB	54	-31	04	13
19	A	71	35	-02	-12
20	B	44	-12	-04	04
		Elementary School Teachers			
21	A	73	45	04	02
22	A	63	15	01	12
23	A	78	14	19	-01
24	A	69	12	-22	10
25	A	77	30	31	04
26	A	55	48	25	28
27	A	75	05	20	-05
28	B	65	-39	-12	07
29	B	56	-21	03	11
30	B	32	-58	06	15
31	B	55	04	-58	-09
32	B	63	-11	-51	-11
33	B	29	-65	04	-09
34	B	-14	40	-56	15
35	AB	61	16	-14	06
36	AB	57	-06	-16	08
37	AB	67	-24	13	27
38	AB	46	-35	37	-10
39	A	67	-08	-23	18
40	B	59	-40	21	-17

[a] All decimal points are omitted.

Table X-2

Rotated Factor Matrix of Responses to Elementary School Sort[a,b]

Ss	Attitude	Factor				h^2
		A	B	C	D	
		High School Teachers				
1	A	83	13	04	12	72
2	A	34	28	-07	10	21
3	A	49	47	15	-08	49
4	A	71	-09	22	28	64
5	A	64	10	35	15	56
6	A	48	51	22	37	68
7	A	56	09	38	14	49
8	B	07	12	12	48	27
9	B	09	51	42	34	56
10	B	70	31	-14	18	63
11	B	32	20	12	56	47
12	B	17	67	25	-03	53
13	B	37	31	26	15	32
14	B	-10	-03	58	-04	35
15	AB	49	06	05	32	34
16	AB	29	59	08	31	53
17	AB	64	40	09	11	59
18	AB	22	55	01	21	40
19	A	75	11	24	12	64
20	B	25	35	11	13	21
		Elementary School Teachers				
21	A	83	13	15	-01	74
22	A	57	32	10	03	43
23	A	72	31	02	23	66
24	A	54	39	32	-01	55
25	A	83	22	-10	16	78
26	A	77	13	-17	-20	67
27	A	64	33	01	30	61
28	B	21	66	20	27	59
29	B	29	49	04	18	37
30	B	-10	61	-08	28	47
31	B	30	31	68	01	65
32	B	28	43	63	14	67
33	B	-17	51	02	47	51
34	B	01	-18	45	-54	52
35	AB	53	29	25	01	43
36	AB	36	41	24	08	36
37	AB	39	65	-09	14	60
38	AB	22	37	-22	49	48
39	A	40	55	29	01	54
40	B	24	46	-03	56	58

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[a] All decimal points are omitted.

[b] Significant loadings (.35 or greater)are underlined.

Table X-3

Unrotated Factor Matrix of Responses to High School Sort[a]

Ss	Attitude	Factor			
		I	II	III	IV
		High School Teachers			
1	A	77	-06	-12	-21
2	A	59	23	-09	-04
3	A	64	-16	00	37
4	A	69	39	12	03
5	A	79	29	-07	-13
6	A	63	17	32	-10
7	A	71	00	14	02
8	B	81	-21	-12	-04
9	B	65	-13	-14	11
10	B	46	-02	36	49
11	B	54	-28	00	-04
12	B	42	-16	47	-16
13	B	48	-23	38	08
14	B	70	-14	25	-02
15	AB	71	-19	27	-04
16	AB	60	34	06	16
17	AB	64	-26	-03	-18
18	AB	41	-51	01	-21
19	A	82	-09	-14	06
20	B	61	-25	07	-16
		Elementary School Teachers			
21	A	39	25	23	40
22	A	25	73	-17	-01
23	A	82	-02	-35	05
24	A	71	19	03	-18
25	A	82	-19	08	04
26	A	65	29	-03	05
27	A	81	09	-06	-20
28	B	67	-13	-26	25
29	B	51	-06	-32	21
30	B	68	-26	14	00
31	B	61	49	-07	-10
32	B	52	47	28	-15
33	B	64	-19	-15	-02
34	B	48	-20	00	03
35	AB	31	53	07	-13
36	AB	78	00	-02	-12
37	AB	74	-21	-20	02
38	AB	39	17	-06	22
39	A	83	03	-27	03
40	B	73	-01	-01	-07

[a] Decimal points are omitted.

Table X-4

Rotated Factor Loadings of Responses to High School Sort[a,b]

Ss	Atti-tude	Factor				h^2
		A	B	C	D	
		High School Teachers				
1	A	62	37	35	-05	65
2	A	38	48	13	10	41
3	A	54	09	22	47	57
4	A	28	66	25	26	64
5	A	49	65	25	08	73
6	A	19	47	49	18	53
7	A	42	34	42	24	52
8	B	72	22	38	10	72
9	B	60	18	20	20	47
10	B	16	10	31	67	58
11	B	48	03	36	07	37
12	B	07	12	64	10	44
13	B	21	03	55	29	43
14	B	40	23	55	22	56
15	AB	41	20	60	20	62
16	AB	28	54	13	34	50
17	AB	56	13	43	-04	51
18	AB	46	-19	46	-14	48
19	A	70	30	28	20	70
20	B	47	12	48	-01	46
		Elementary School Teachers				
21	A	08	32	11	56	43
22	A	01	74	-28	07	62
23	A	80	35	11	12	80
24	A	41	54	34	03	57
25	A	61	22	49	23	71
26	A	38	54	15	22	51
27	A	57	51	36	01	71
28	B	70	15	08	29	60
29	B	59	14	-05	20	41
30	B	50	11	51	19	55
31	B	29	73	08	08	63
32	B	02	69	32	13	59
33	B	62	15	-26	07	48
34	B	42	06	28	13	27
35	AB	-02	63	05	03	40
36	AB	55	40	38	07	61
37	AB	72	17	26	10	63
38	AB	27	28	-00	29	23
39	A	75	42	16	13	77
40	B	52	36	35	11	53

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[a] All decimal points are omitted.

[b] Significant loadings (.35 or greater) are underlined.

The factors were named on the basis of the 12 highest items on each of the factor arrays. Factor A was named "General Subject Matter Presentation." A comparison with Elementary Factor B (Structure and Subject Matter) shows that while nine traditionalists and four progressives loaded significantly on it, 28 of the 40 subjects who responded to the High School Q Sort loaded significantly on this subject matter factor. This seems to support Hypothesis 2 that the factor structure will be "clearer" for the Elementary School Q Sort. ("Clearer" was defined as more subjects loading on one and only one factor. The subject matter factor in the High School Q sort emerged as a general factor accounting for 42 per cent of the common factor variance.)

Factor B of the High School Q Sort was named "Concern for Students." This factor is similar in content to Elementary Factor A, except that certain subject matter items that appeared on the elementary school factor did not appear here.

Factor C was named "Structure and Subject Matter" and is similar in content to Elementary Factor B. Factor D was named "Norms and Rules." There is no parallel to this factor in the Elementary sort.

The intercorrelations between the four high school and four elementary school factor arrays are reported in Table X-5. The substantial correlations between Elementary Factor A and High School Factor B (r = .77), and Elementary Factor B and High School Factor C (r = .70) confirm the judgments of the content of the factor arrays.

Analysis of Variance

To test Hypotheses 2 and 3, predicting specific rank orders of the four areas among progressives and among traditionalists, the responses of each subject were subjected to a simple analysis of variance. In general the hypotheses were not supported. There were, however, some apparent trends. Progressives, for example, tended to rate teaching-subject matter significantly higher than authority-discipline. Traditionalists tended to rate teaching-subject matter significantly higher than interpersonal relations.

Cross-Sectional Study

To test Hypothesis 1 further, a cross-sectional study was undertaken. A Teacher Behavior Rating Scale (TBRS) was constructed on the basis of the factor analysis of the Q data.

Table X-5

Matrix of Intercorrelations Between Factor Arrays on Elementary and High School Q Sorts[a,b]

Factors	Elementary				High School			
	A	B	C	D	A	B	C	D
Elem.								
A	100	29	19	40	65	77	31	26
B		100	36	55	60	23	70	26
C			100	10	51	08	30	27
D				100	35	43	56	06
H.S.								
A					100	45	50	35
B						100	28	32
C							100	42
D								100

[a] A correlation of .22 is significant at the .05 level, .29 at the .01 level.

[b] Decimal points are omitted.

Fifteen items which were high on the "Concern for Pupils" factor array (Beh-A) and fifteen items which were high on the "Structure and Subject Matter" array (Beh-B) were selected for the scale. The order of the items was randomly determined. Two forms of the scale were constructed. The forms differed only in the referent to be rated. One form instructed the respondent to rate the behaviors according to their importance for a high school teacher. The other form called for rating the importance of the behaviors for an elementary school teacher. (For a copy of the scale see the Appendix.)

ES-VII and the Teacher Behavior Rating Scales were administered to 180 teachers enrolled in universities in the New York Metropolitan area. By a process of random selection 96 teachers responded to the TBRS elementary form, and 84 teachers responded to the high school form of TBRS.

Correlations between ES-VII and TBRS

ES-VII A and B measures were correlated with the TBRS Beh-A and Beh-B in order to study the relationships between educational attitudes and perceptions of teacher behaviors. A positive correlation was predicted between ESA and Beh-A and between ESB and Beh-B.

The correlation between ES-VII A and Beh-A, elementary form, was .46 ($p < .01$), whereas the correlation between ES-VII A and Beh-A, high school form, was .18. This pattern was reversed for correlations between ES-VII B and Beh-B for the high school form: .35 ($p < .01$) between ES-VII B and Beh-B, and .08 between ES-VII A and Beh-A. These patterns seem to indicate an interaction between educational attitudes and the teaching level for which the desirable behaviors are rated.

Factor Analysis

The responses to the TBRS elementary form and high school form were separately intercorrelated yielding two 30 by 30 correlation matrices. The matrices were then factor analyzed with the principal axis method and varimax rotations. Four factors emerged from each analysis. The elementary school factors were named: (1) Concern for Students, (2) Competent Subject Matter Presentation, (3) Rules and Discipline, (4) Stimulating Teaching. The high school factors were: (1) Concern for Students, (2) Rules and Discipline, (3) Structure in Presentation of Subject Matter, (4) Unnamed.

The relations between comparable factors were studied by means of the coefficient of congruence. The coefficients were: Concern for Students .90; Rules and Discipline .84; Competent Subject Matter Presentation .77, .73, and .77 with three of the four high school factors, indicating that subject matter items loaded on these factors. The coefficient of congruence between the elementary school factor Stimulating Teaching and the high school factor Concern for Students was .78. It is to be noted that items on these two factors reflect precepts generally associated with "progressive education." In general, the coefficients of congruence indicate that factors similarly named were related.

Summary and Implication

This study investigated the relation between educational attitudes and perception of teacher behaviors in the elementary school and the high school. The study was conducted in two phases: employing Q methodology in the first, and a cross-sectional approach in the second.

It was found that progressives and traditionalists perceive teacher behavior differently. There was, however, a notable difference between perceptions for elementary and high school. For the latter both progressives and traditionalists tended to emphasize subject matter. This would indicate that the levels for which perceptions of teacher behavior are elicited play a part in the perception. Further research is warranted.

The findings of this study are in agreement with Ryans' and Kerlinger's studies. The similarity between the findings of the three investigators is illustrated by some items that loaded significantly on factors which are considered similar.

Investigator	Factor	Items
Ryans	1. Understanding, Friendliness	responsive, understanding, kindly.
	2. Businesslike, Systematic	systematic, responsible, steady.
Kerlinger	1. Progressive Teacher	friendly, sympathetic, warm.
	2. Traditional Teacher	firm, efficient, industrious

Investigator	Factor	Items
Sontag	1. Concern for Students	Shows sincere concern when confronted with personal problems of pupils.
	2. Structure and Subject Matter	Presents well-planned lessons. Is consistent in administereing discipline.

It is noteworthy that though the three investigators used different techniques, there is agreement between their findings. This is particularly interesting when considering that Ryans used actual observations in classrooms while the other studies used Q and R methodologies.

The most important implication of this study would seem to be that when dealing with perception of teacher behaviors one should take into account the educational attitudes of the perceiver as well as the context within which the perception takes place.

Pseudoprogressivism and Assessment of Teaching Behavior[2]

This investigation focused on the distinction between the content and structure of attitudes (Katz, 1960; Rokeach, 1960), or between the phenotypical and genotypical aspects of educational attitudes. It attempted to distinguish between pseudoprogressives and "genuine" progressives in educational attitudes. A person whose attitudes are progressive in content but dogmatic or closed in structure was defined as a pseudoprogressive. A "genuine" progressive is a person whose attitudes are progressive in content and open in structure, that is, not dogmatic.

Operationally, a pseudoprogressive is a subject whose scores are above the mean of his group on the progressivism factor of ES-VII (ESA) and on the Dogmatism Scale (Rokeach, 1960). A genuine progressive is a subject whose score on ESA is above the mean of his group and whose score on the D Scale is below the mean of his group.

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[2] For a full report of this study, see Pedhazur (1966).

The following three hypotheses were tested:

1. Pseudoprogressives will assess teachers exhibiting manifestly progressive behavior more positively than will genuine progressives. This relation will be more pronounced among teachers than among students of education.

2. When forming impressions of personality of teachers exhibiting manifestly progressive behaviors, pseudoprogressives will attribute to these teachers a greater degree of possession of progressive traits than will genuine progressives. This relation will be more pronounced among teachers than among students of education.

3. Pseudoprogressives will be more susceptible to an authoritative source than will genuine progressives. This relation will be the same among teachers and among students of education.

A brief description of the instruments used and the major findings will be reported separately for each hypothesis.

Assessment of Teacher Behavior

One hundred and fifty-nine teachers and 174 students enrolled in schools of education (students of education) from the New York Metropolitan area whose scores were above the mean on ES-VII A were retained for analysis. They responded to ESA, the D Scale, and a scale specially constructed for this study, Teachers At Work-Rating Scale (TAW-R). The latter served as a measure of the dependent variable, assessment of teacher behavior. It consisted of episodes depicting teacher-student interactions in which the teachers employ the mechanics or facade of progressivism but in essence contradict its philosophy and the behaviors implied by its philosophy. In each episode the teacher either manipulates the students, encourages destructive criticism, or encourages intragroup aggression and competition. The respondents rated each teacher depicted in an episode on a six-point scale from "very poor" to "excellent." (For a copy of the scale see the Appendix.)

Table X-6 presents the means and standard deviations of the subsamples on ESA, the D Scale, and Teachers At Work-Rating Scale (TAW-R).

The TAW-R scores were subjected to a 2 x 2 factorial analysis of variance using educational attitudes (pseudopro-

Table X-6

Means and Standard Deviations of Subsamples on ES-VII *A*, D Scale, and TAW-R

		TEACHERS		STUDENTS	
		Gen.[a] Prog.	Pseud.[b] Prog.	Gen.[a] Prog.	Pseud.[b] Prog.
N		73	86	94	80
	A	6.22	6.13	6.09	6.09
M:	D	2.81	3.80	2.83	3.82
	TAW-R	13.67	17.08	15.10	17.99
	A	.39	.39	.41	.37
SD:	D	.35	.41	.36	.41
	TAW-R	3.44	4.17	4.08	4.11

[a] Genuine Progressives

[b] Pseudoprogressives

gressivism and genuine progressivism) as one variable and teaching experience (teachers and students of education) as the other variable. Since the frequencies in the cells are unequal, a harmonic mean transformation was performed prior to the analysis (Winer, 1962, pp. 241-244).

In Table X-7 will be found the summary of the factorial analysis of variance. The means of 14.47 and 17.52 and the F ratio of 51.04 ($p < .001$) between genuine progressives and pseudoprogressives support the first part of Hypothesis 1, namely that pseudoprogressive assess more positively teachers exhibiting manifestly progressive behaviors than do genuine progressives. As can be seen in Table X-6, the mean difference between genuine progressives and pseudoprogressives is about .75 standard deviations.

There is also a significant difference between teachers and students ($F = 6.99$, $p < .01$) indicating that teaching experience may have an effect on the responses to the scale. The predicted interaction, however, is not significant.

The degree of relationship between the variables was studied by correlational analysis. In Table X-8 are reported the correlations between ESA, D, and TAW-R for teachers and students of education. While the correlations between ESA and D, and ESA and TAW-R hover around zero for both groups, the correlations between D and TAW-R for teachers and students are .45 ($p < .001$) and .34 ($p < .001$) , respectively. The lack of correlation between ESA and D was a basic premise in defining the measure of the independent variable.

Factor analysis of TAW-R items and ESA and D total scores yielded factor structures markedly different for teachers and students. The unrotated and rotated factor matrices of the teacher sample are given in Table X-9. Items 1 and 5 of the Teachers at Work Scale, which dealt with teaching subject matter, loaded significantly ($\geq .35$) on Factor *B*, as did the D Scale. The factor was named "Pseudoprogressive Teaching." Items 2, 3, and 4, which dealt with various aspects of class management, loaded significantly on Factor *A*, as did the D Scale. Factor *A* was named "Pseudoprogressive Class Management." The fact that ESA hardly loaded on either factor and that the D Scale loaded on both may also serve as evidence of the validity of the Teachers at Work Scale. It was maintained earlier that all the episodes in the scale are manifestly progressive, thus implying that the D Scale should load on the same factors that the items of the TAW Scale did.

The analysis of the students' responses yielded one factor which did not require rotation. The factor is reported in

Table X-7

Analysis of Variance Summary
Table for TAW-R Scores

SOURCE	ss	df	MS	F	p
Genuine vs Pseudo	818.70	1	818.70	51.04	(.001)
Teachers vs. Students	112.24	1	112.24	6.99	(.01)
Interaction	6.60	1	6.60	<1	
Within Cells	5277.00	329	16.04		

Table X-8

Correlations Between ES-VII A, D, and TAW-R for Teachers and Students

	TEACHERS			STUDENTS		
N	159			174		
	A	D	TAW-R	A	D	TAW-R
A	1.00	-.09	-.06	1.00	.00	-.05
D		1.00	.45		1.00	.40*
TAW-R			1.00			1.00

*$p < .001$

Table X-9

Unrotated and Rotated Factor Matrices, TAW-R Items,
ES-VII *A*, and D Totals,
Teacher Sample, *N* = 159[a]

Variables	Unrotated Matrix		Rotated Matrix		
	I	II	A	B	h^2
1	.19	.35	-.02	.40	.16
2	.49	-.07	.46	.19	.25
3	.41	-.27	.49	-.03	.24
4	.47	-.19	.50	.07	.26
5	.33	.38	.09	.50	.25
6	.40	.01	.34	.21	.16
7	-.09	.14	-.14	.07	.03
8	.59	.08	.47	.37	.36

[a] Significant loadings underlined. Variable 7: ES-VII *A*; Variable 8: D Scale

Table X-10. Again, the D Scale loaded on this factor (.51), whereas the loading of ESA was practically zero (-.06). Unlike the results yielded by the teachers, not all the items of the TAW Scale loaded on the factor. The different results for teachers and students seem to indicate that teachers and students do differ in the manner in which they assess teacher behavior.

Impressions of Teacher Personality

The instrument designed to measure impressions of personality, Teachers At Work-Traits (TAW-T), was composed of the same episodes as TAW-R. Instead of a rating scale, however, each episode was followed by nine TCA traits from TC-VIII (see Chapter VI): original, imaginative, sensitive, warm, friendly, tolerant, sympathetic, insightful, open-minded. Respondents were asked to indicate on a seven-point scale the degree to which each teacher depicted in an episode possessed each of the traits listed. It was hypothesized that since the episodes are manifestly progressive pseudoprogressives will attribute to the teachers a greater degreee of possession of the traits than will genuine progressives.

One hundred and seventy-four teachers and 85 students of education who met the criterion on ESA were retained for analysis. Table X-11 reports the means and the standard deviations of teachers and students on ESA, the D Scale, and Teacher At Work-Traits (TAW-T).

The TAW-T scores were subjected to a 2 x 2 factorial analysis of variance, using educational attitudes as one variable and teaching experience as the other variable. Table X-12 summarizes the results. There is a significant difference between genuine progressives and pseudoprogressives ($\underline{F}$ = 29.29; $\underline{p} < .001$). This supports the first part of Hypothesis 2. The differences between the means are about .75 standard deviations. There is also a significant difference between teachers and students ($\underline{F}$ = 5.28; $\underline{p} < .025$). This may lead one to conclude that teaching experience influences the responses to the scale.

Pearson $\underline{r}$'s between ESA, D, and TAW-T for teachers and students are presented in Table X-13. The correlations between ESA and D, and ESA and TAW-T hover around zero, with the exception of the correlation between ESA and D for teachers, which is slightly higher, though not significant. The correlations between D and TAW-T, however, are relatively substantial and significant. Although the correlation among teachers (.42; $\underline{p} < .001$) is higher than the correlation among students (.39;

Table X-10

Unrotated Factor Vector, TAW-R Items,
ES-VII A, and D Totals,
Student Sample, N = 174[a]

Variables	I
1	.21
2	.50
3	.34
4	.49
5	.34
6	.06
7	-.06
8	.51

[a] Variable 7: ES-VII A; Variable 8: D Scale.

Table X-11

Means and Standard Deviations of Subsamples on ES-VII A, D Scale, and TAW-T

		TEACHERS		STUDENTS	
		Gen.[a] Prog.	Pseud.[b] Prog.	Gen.[a] Prog.	Pseud.[b] Prog.
N		96	78	50	35
	A	6.23	6.07	6.12	6.07
M:	D	2.70	3.79	2.82	3.88
	TAW-T	133.92	170.70	149.02	187.60
	A	.41	.39	.40	.36
SD:	D	.35	.46	.41	.43
	TAW-T	47.73	53.43	49.02	60.29

[a] Genuine Progressives

[b] Pseudoprogressives

Table X-12

Analysis of Variance Summary
Table for TAW-T Scores

SOURCE	ss	df	MS	F	p
Genuine vs. Pseudo	79102.91	1	79102.91	29.29	$<.001$
Teachers vs. Students	14250.29	1	14250.29	5.28	$<.025$
Interaction	44.56	1	44.56	<1	
Within Cells	688672.00	255	2700.67		

Table X-13

Correlations Between ES-VII A, D, and TAW-T for Teachers and Students

	TEACHERS			STUDENTS		
N	174			85		
	A	D	TAW-T	A	D	TAW-T
A	1.00	-.12	-.05	1.00	-.03	-.03
D		1.00	.42*		1.00	.39*
TAW-T			1.00			1.00

$^{*}p < .001$

$\underline{p} < .001$), as predicted, the two correlations are not significantly different ($\underline{z} = .28$).

Responses to items of the Teachers at Work Scale, ESA, and D total scores were factor analyzed for teachers and students separately. Each analysis yielded one factor. These factors are reported in Tables X-14 and X-15. All items of the TAW-T Scale and the D total score loaded on the factor, while the ESA loading was practically zero. This again lends support to the contention that the TAW items are manifestly progressive.

Unlike the results for the Teachers at Work-Rating Scale, which called for assessment of teacher behavior, the factor structures for the Teachers at Work-Traits Scale for teachers and students were almost identical. (The coefficient of congruence was .99.) This would seem to indicate that when forming impressions of personality of teachers, students and teachers respond in like manner.

Susceptibility to an Authoritative Source

An Aims of Education (AOE) instrument was constructed to measure susceptibility to an authoritative source. This instrument consists of two quotations about the aims of education. One is by John Dewey (1916, p. 125) and the other by Mortimer Adler (1942, pp. 221-222). The instrument has four forms: (1) Dewey's quotation first, Adler's second; (2) Adler's quotation first, Dewey's second; (3) the names of the authors of the quotations are reversed: Adler's quotation appears first and is attributed to Dewey, and Dewey's quotation, which appears second, is attributed to Adler; (4) Dewey's quotation appears first and is attributed to Adler, and Adler's quotation, which appears second, is attributed to Dewey. The first two forms will henceforth be referred to as the *true condition*. Forms (3) and (4) will be referred to as the *false condition*. The forms were randomly distributed to subjects who were asked to read the two statements and indicate which of the two they endorsed. (For a copy of the instrument see the Appendix.)

Two hundred and fifty-eight teachers and 202 students who met the criterion on ESA were retained for analysis. The responses of the teachers and those of the students were separately subjected to a multidimensional analysis (Winer, 1962, pp. 629-632).

Table X-16 reports the responses of pseudoprogressive and genuine progressive teachers under the true and false conditions. Table 17 summarizes the chi square partitioning.

Table X-14

Unrotated Factor Vector, TAW-T items,
ES-VII A, and D Totals,
Teacher Sample, N = 174[a]

Variables	I
1	.43
2	.56
3	.55
4	.56
5	.52
6	.54
7	-.08
8	.48

[a] Variable 7: ES-VII A; Variable 8: D Scale.

Table X-15

Unrotated Factor Vector, TAW-T Items,
ES-VII A, and D Totals,
Student Sample, N = 85[a]

Variables	I
1	.48
2	.68
3	.60
4	.67
5	.57
6	.68
7	-.04
8	.43

[a] Variable 7: ES-VII A; Variable 8: D Scale.

Table X-16

Frequencies of Teachers' Endorsements Under True and False Conditions

	TRUE		FALSE		
	Pseudo-progressive	Genuine Progressive	Pseudo-progressive	Genuine Progressive	
Adler	8	6	37	43	94
Dewey	46	56	33	29	164
	54	62	70	72	258

Table X-17

Partition of Chi Squared for Teachers

SOURCE	X^2	df	p
Between True and False	54.02	1	$<.001$
Between Pseudo and Genuine	.00	1	n.s.
Interaction (True-False x Pseudo-Genuine)	1.05	1	n.s.
Total	55.07	3	$<.001$

As shown in this table, the total $\underline{X}^2$ is significant (55.07, $\underline{p} < .001$). When partitioned, however, only the $\underline{X}^2$ for true and false is found to be significant (54.02, $\underline{p} < .001$). That is, under the true condition, a great majority of the teachers, pseudoprogressives and genuine progressives alike, endorsed Dewey (102), and only a few (14) endorsed Adler. Under the false condition the picture is quite different. Of 142 subjects 80 endorsed Adler and 62 endorsed Dewey. The practically zero $\underline{X}^2$ for pseudoprogressives and genuine progressives is not surprising, since the true and false treatments are ignored. The interaction $\underline{X}^2$ is not significant, thereby not supporting the hypothesis of a difference between pseudoprogressives and genuine progressives under the false treatment.

Table X-18 reports the responses of pseudoprogressive and genuine progressive students of education under the true and false conditions. Table X-19 reports a summary of the chi square partitioning. The total $\underline{X}^2$ is significant (45.84, $\underline{p} < .001$). Upon partitioning, the $\underline{X}^2$ for the interaction between true-false and pseudo-genuine is found to be significant (4.32, $\underline{p} < .05$). Computing a $\underline{X}^2$ for the true condition one gets 1.21 which is not significant. The $\underline{X}^2$ within the false condition is 4.20 ($\underline{p} < .05$), thus supporting the hypothesis that under the false condition more pseudoprogressives will endorse a traditionalist statement attributed to Dewey, and more genuine progressives will endorse a progressive statement attributed to Adler. As can be seen from Table X-18, under the false condition 32 out of 58 pseudoprogressives endorsed Adler, while 46 out of 63 genuine progressives endorsed Adler. The $\underline{X}^2$ for the true and false condition (41.23, $\underline{p} < .001$) shows, as in the case of the teacher group, that there is a significant difference in responses under the true and the false conditions. When responding under the true condition most pseudoprogressives and genuine progressives endorsed Dewey.

Summary and Implications

The present study distinguished between pseudoprogressives and genuine progressives and found that pseudoprogressives assessed manifestly progressive teacher behavior more positively than did genuine progressives, pseudoprogressives attributed to teachers exhibiting manifestly progressive behavior a greater degree of possession of progressive traits than did genuine progressives, and the great majority of teachers and students endorsed a progressive statement when the statement was attributed to a leading exponent of progressivism (Dewey). When the same statement was attributed to a leading exponent of traditionalism (Adler), more genuine progressive students endorsed it, whereas

Table X-18

Frequencies of Students' Endorsements
Under True and False Conditions

	TRUE		FALSE		
	Pseudo-progressive	Genuine Progressive	Pseudo-progressive	Genuine Progressive	
Adler	8	7	32	46	93
Dewey	25	41	26	17	109
	33	48	58	63	202

Table X-19

Partition of Chi Square for Students

SOURCE	X^2	df	p
Between True and False	41.23	1	$<.001$
Between Pseudo and Genuine	.29	1	n.s.
Interaction (True-False x Pseudo-Genuine	4.32	1	$<.05$
Total	45.84	3	$<.001$

more pseudoprogressive students endorsed a traditionalist statement attributed to Dewey. The teachers' responses, however, were different: almost as large a proportion of genuine progressives as pseudoprogressives endorsed a traditionalist statement attributed to Dewey. The difference can perhaps be attributed to teachers experiencing greater cognitive dissonance when faced with situations in which they not only have to reject Dewey but also accept Adler.

The investigation has several implications for the study of attitudes and educational practices: (a) the study of the relations between attitudes and cognitive processes can be enhanced by investigating the phenomenon of pseudoism; (b) entrusting students to pseudoprogressive teachers may have deleterious consequences; (c) during teacher training efforts should be directed toward developing self-insight, attitudes, and ways of thinking about the educative process; (d) the lack of ability of certain teachers and students to evaluate materials critically when such materials are attributed to a prestigious source casts doubts on their competence to develop a critical approach in their students.

Educational Attitudes and Teachers' Perceived Role Preference[3]

In this investigation attempts were made to study the relationship between educational attitudes and the perceived roles preferred by teachers. Two of the hypotheses tested were:

1. Progressive attitudes toward education are related to a high degree to the teachers' perceived role of counselor and to a moderate degree to the perceived role of motivator.

2. Traditional attitudes toward education are related to a high degree to the teachers' perceived role of disciplinarian and to a moderate degree to the perceived role of referrer.

Measuring Instruments and Definitions

The independent variable, educational attitudes, was measured by ES-VII. The dependent variable, perceived roles, was measured by a modified version of the Teachers Practices

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[3] This is part of a Ph.D. investigation by Alice Klein. The study is still in progress at New York University.

Questionnaire (TPQ) of Sorenson, Husek, and Yu (1963). In its modified form the scale consists of 40 items grouped into ten tetrads of four items each. Each tetrad is preceded by a problem situation involving a student. The respondent is asked to rate possible courses of action on a seven-point scale of appropriateness-inappropriateness. These courses of action are meant to reflect the roles of counselor, motivator, referrer, and disciplinarian. Five of the situations of the TPQ involve elementary students; the other five involve high school students.

Sorenson, Husek, and Yu (1963, p. 287) described the four roles as follows:

> Counselor. The teacher who assumes this role seeks basic causes underlying behavior; concerns himself primarily with the student, helps him discover more courses of action on which to base his decision; wants the student to think independently.
>
> Motivator. The teacher manipulates situations so that the student will be stimulated to action predetermined by the teacher; he uses rewards, implied or real, as incentives.
>
> Referrer. In some circumstances, instead of dealing directly with the problem himself, the teacher secures the help of various agencies available: counselor, principal, special classes, and so on; he shifts the responsibility and the problems to others.
>
> Disciplinarian. This teacher adheres rather rigidly to rules, authority, and tradition and believes in punishing as an incentive.

Subjects whose score was at least one standard deviation above the mean of the entire sample on any given factor of TPQ were considered to have shown preference for that role. (Note that under this procedure role preferences are not mutually exclusive. That is, a subject may show equal preference for two or more roles.)

Results

Six hundred and eighty-nine teachers and teacher trainees from New York City, New Jersey, and Illinois responded to the scales. Some of the findings follow:

To test the relations between educational attitudes and perceived roles, Pearson *r*'s were computed between ESA, ESB, and the four roles. These correlations are reported in Table X-20. As indicated in this table, the correlation between ESA (progressivism) and the counselor's role is .50 ($\underline{p} < .001$), and the correlation between ESA and the motivator's role is .43 ($\underline{p} < .001$). A test of significance between the two correlations indicates that the correlation between progressivism and the perceived role of a counselor is significantly higher than the correlation between progressivism and the perceived role of a motivator ($\underline{t} = 19.24$; $\underline{p} < .01$).[4] The obtained correlations are both moderate and partially support Hypothesis 1.

From the correlations between ESB (traditionalism) and the perceived roles of disciplinarian and referrer (.50 and .15 respectively) one may conclude that Hypothesis 2 was not supported. The relation between traditionalism and the perceived role of disciplinarian is moderate, not high, and the relation between traditionalism and the perceived role of referrer is slight, not moderate. Nevertheless, the correlation between ESB and the perceived role of disciplinarian is significantly higher than the correlation between ESB and the perceived role of referrer ($\underline{t} = 7.87$; $\underline{p} < .01$), as expected.

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[4] This is a test between nonindependent $\underline{r}$'s.

Table X-20

Correlations Between A and B Factors, ES-VII, and C, M, R, and D Factors, TPQ, N = 689[a]

		Roles[b]			
		C	M	R	D
Attitudes	A	.50	.43	.09	-.49
	B	-.18	-.19	.15	.50

[a] r = .08 is significant at the .05 level.
r = .10 is significant at the .01 level.
r = .13 is significant at the .001 level.

[b] C--Counselor; M--Motivator; R--Referrer; D--Disciplinarian

Chapter XI

Summary and Overview: Theory, Findings, and Implications

Three major purposes dominated this study: (1) to determine the relations between attitudes toward education and perceptions of desirable characteristics and behaviors of teachers; (2) to study the factor structure and content of attitudes toward education; and (3) to study the factor structure and content of perceptions of teacher characteristics and behaviors. These purposes have been accomplished with one exception: the perceived behaviors of teachers were not studied in the breadth and depth that would have been desirable. In this chapter, we summarize the theoretical bases of the research, the procedures used to answer the research questions and to test the hypotheses, and the empirical findings. In addition, we explore the strengths and weaknesses, or contributions and limitations, of the study. We will also try to place the study in the larger educational picture by discussing its possible practical and research implications.

Theory

The theoretical bases of the study were central directive-state theory and a structural theory of social and educational attitudes. Central directive-state theory's main notion is that perceptions are influenced by the internal states of the individual--attitudes, values, motives, and the like. In this study, the central state was attitude, specifically attitudes toward education. The general and most important question of the study was: How do attitudes toward education affect individuals' perceptions of desirable characteristics of teachers? It was hypothesized that judges with progressive attitudes toward education, when faced with the task of choosing traits of effective teachers, will choose or favor traits congruent with progressive educational opinions and beliefs, and judges with traditional attitudes toward education will choose traits congruent with traditional educational opinions and beliefs. This hypothesis springs from a general hypothesis to the effect that judgments of the effective professional in any field are in part a function of the attitudes held by members of the profession toward the field and its substance, roles, and work.

A structural theory of social and educational attitudes guided the attitude part of the investigation. This theory tries to explain the factorial structure and content of social attitudes (Kerlinger, 1967a). Social attitudes--educational attitudes are conceived to be a subset of general social attitudes (Smith, 1963)--are dualistic and not bipolar. The basic minimum of any large attitude-belief system, structurally speaking, is two dimensions or factors. These two factors are relatively orthogonal to each other. ("Relatively orthogonal" means slightly negatively correlated--about -.20.) The two broad dimensions of social attitudes are liberalism and conservatism. The two broad dimensions of educational attitudes are progressivism and traditionalism. But progressivism is not the opposite of traditionalism, nor is traditionalism the opposite of progressivism. The two dimensions, in other words, are not two aspects of one dimension; they are separate though related attitude systems.

A referent is a category or name that applies to all kinds of phenomena. Any kind of recurrence can be the referent of a name. In the theory, any social and educational recurrence can be the referent of an attitude. Attitude referents are what have been called "cognitive objects." A criterial referent of an attitude is a construct that is the focus of an attitude, or one or more of its aspects, and that is criterial, or significantly relevant, for groups of individuals. The word "criterial" connotes a standard, a means of judging relevance. Attitude referents are criterial in different ways for different groups of individuals. What is criterial for one group is not necessarily criterial for another group.

The universe of educational attitude referents evidently breaks down into progressive and traditional subsets. Such referents as subject matter, discipline, and moral standards are criterial for the traditionalist. Referents like social learning, individual differences, and child needs are criterial for the progressive. It should be noted, however, that these are assumptions as far as the present study is concerned. The criterial referent part of the theory was not tested, at least directly.

The duality of attitudes and attitude referents is probably due to the culture in which individuals learn their attitudes. In advanced Western cultures, there seem to be two "choices," or ideologies, that correspond to liberalism and and conservatism in social attitudes and progressivism and traditionalism in educational attitudes. There thus seems to be a press toward dichotomizing the referents of attitudes into those that are criterial and those that are not criterial. Parents, teachers, and peers presumably convey the criteriality of referents to children. The criteriality of referents are also probably reinforced by selective association: people with similar beliefs tend to associate with each other and not with people of dissimilar beliefs.

The empirical implications of the theory are complex. Two "general," or second-order, factors should account for most of the variance of the responses to educational attitude items, and these factors should correspond to existing conceptions of progressive and traditional notions of education. They will be separate and distinct entities, even though slightly negatively correlated. While there was little theoretical reason to predict similar dualism in the responses to teacher characteristic items, it was believed that there would be some semblance of such dualism. The main reason for this expectation was that since attitudes are assumed to be a fairly strong influence on educational perceptions and judgments, the structure of perceptions of teacher characteristics should be of the same general form as the attitude structure. Thus, it seemed reasonable to expect that factor analysis of the responses to teacher characteristics items would reveal a dualistic structure.

It also seemed reasonable to expect, in light of both theories, that the dualistic structure of teacher characteristics should be related to the dualistic structure of educational attitudes. The person orientation factor and content of teacher trait perceptions should be congruent with the progressivism factor and content of educational attitudes, and the task orientation factor and content of trait perceptions should be congruent with the factor and content of educational traditionalism. (By "congruent with" is meant that "congruent" factors will share the same second-order factor space and the content of the main first-order factors will be related.)

Methodology

The basic method of the study was to construct various measures of educational attitudes and teacher trait perceptions, to administer them to samples of teachers and graduate students of education in various parts of the country, and to study the predicted relations and test the hypotheses mainly by using zero-order correlations and first- and second- order factor analysis. Part of our method and analysis, however, had to be developed especially for the study.

It is accurate to say that much of our effort was devoted to problems of measurement. Four measures of educational attitudes were used: a Q sort called QED, and Education Scales I, VI, and VII, or ES-I, ES-VI, and ES-VII. ES-VI and ES-VII were constructed during the study; QED and ES-I had been constructed and used in earlier research. The three ES scales were of the summated-rating type. To measure perceptions of desirable teacher characteristics five instruments were constructed: a Q sort whose items were single trait adjectives, all desirable or positive in nature, selected from a large pool of such adjectives; two summated-rating scales, called Teacher Characteristics Scales I and VIII, or TC-I and TC-VIII, consisting of adjectives chosen on the basis of analysis of the results obtained with the Q sort and, in the case of TC-VIII, chosen on the basis of the results obtained with TC-I; and two "situational," or "choice," instruments, called Hiring Teachers I and III, or HT-I and HT-III, the items of which were presumably realistic descriptions of teachers and included sets of two kinds of adjectives, one associated with person orientation and the other with task orientation.[1]

The ES and TC scales were variously grouped--ES-I, TC-I, and HT-I, for example--and administered to some 3000 teachers and graduate students of education in New York, North Carolina, Texas, Indiana, Wisconsin, and Michigan. Each subject obtained two scores on each of the ES and TC scales. ESA and ESB, the educational attitude measures, were progressivism and traditionalism. TCA and TCB, the first two teacher trait perception measures, were person orientation and task orientation. The items of HTA and HTB were really sets of person orientation and task orientation items embedded in teacher descriptions. Subjects were asked to select a certain number of these teacher descriptions to be recommended for hiring. It was expected that progressive subjects would choose teacher descriptions that were person-oriented and traditional subjects teacher descriptions that were task-oriented.

Three main types of analysis were used: correlations, exact probability and chi square, and factor analysis. The crucial correlations were those between ESA and TCA and between ESB and TCB. If these were positive, statistically significant, and of sufficient magnitude, the main hypothesis was supported. With the HT measures, on the other hand, a rather complex procedure had to be used. This procedure amounted to dichotomizing attitude A and B measures and then counting the numbers of "hits," or the HTA or HTB teacher descriptions, an attitude A or B chose.. An attitude high A, for example, would be expected to choose a certain number of HTA descriptions. If he did, he had gotten a "hit." The results from samples of individuals were evaluated with exact probability and chi square procedures.

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[1] At the time HT-I was originally constructed, the teacher characteristics factors had not been identified as person orientation and task orientation. We use here the later TC-I factor identifications to simplify the summary.

Perhaps most important, factor analysis was used in three ways. First, it was used in the Q sort phase of the work. Judges chosen for their "known" attitudes toward education sorted QED and TCQ (see above). Their responses to QED and TCQ were intercorrelated and factor analyzed separately. The resulting orthogonally rotated factor matrices were compared for congruence. It was predicted that the two factor structures would be highly similar. This means that the same persons would cluster together in the Q factor spaces of both attitude and perception Q sorts. If they did the main hypothesis was supported.

Second, first- and second-order factor analysis was used to test the structural hypotheses discussed earlier. Recall the dualism argument: social and educational attitudes are basically dualistic; they will span a two-dimensional factor space. First-order factors were extracted and obliquely rotated and interpreted. The correlations among the first-order factors were then factored. The expectation was that two orthogonal factors would adequately occupy the second-order factor space. A similar procedure was used to analyze the responses to the teacher perception measures.

The third use of factor analysis was somewhat unusual. The responses to the items of ES-VII and TC-VIII together were intercorrelated and factor analyzed. This was considered to be a "crucial" test of the attitude-perception hypothesis. It was expected that in the first-order factor analysis separate ES and TC factors would emerge. Specifically, we expected the ESA, ESB, TCA, and TCB items to be loaded on separate factors. We also expected, however, that the ESA and TCA factors would be loaded together on one second-order factor, and the ESB and TCB factors would be loaded together on another second-order factor. That is, the attitude A and the attitude B items would be loaded on separate first-order factors, and the perception A and the perception B items would also be loaded on separate factors. Despite this factorial separability of the four kinds of items and factors in first-order factor space, the attitude and perception A factors would come together, and the attitude and perception B factors, too, would come together in the second-order factor space.

Additional substudies involving the relations among attitudes, perceptions, sex, level of teaching, teaching experience, response set, other measures of educational attitudes, category width, field dependence, and social judgment were done. Two doctoral studies were completed. One of these tested the educational attitude and perception of teacher behaviors hypotheses. The other explored the relations among pseudoprogressivism, teaching experience, assessment of teaching behavior, impressions of teacher traits, and susceptibility to authority. A third doctoral study examined the relation between educational attitudes and teacher roles. We do not discuss these studies in this chapter because our purpose here is to give only a broad overview of the study.

Results

Since the empirical results have been presented in considerable detail in earlier chapters, we present here only an outline of them. The study consisted of four substudies and two supplementary factor analytic studies. Study I used the Q-sort approach mentioned above. In Study II, ES-I, TC-I, and HT-I were administered to teachers in New York. ES-VI and TC-I were used with teachers and graduate students of education in New York, North Carolina, and Texas. This was Study III. In Study IV, ES-VII, TC-VIII, and HT-III were administered to teachers and graduate students of education in New York, Indiana, North Carolina, and Michigan. The results of all these studies are presented together in the next section since they are very similar. All these results bear on the main study hypothesis of the relation between educational attitudes and perceptions of teacher characteristics. In the following section we present the factor analytic results that bear on the structural hypotheses, but particularly the dualistic attitude hypothesis. In addition, we present a qualitative description of the attitude and perception first-order factors.

Q Study (Study I)

Two and three factors were extracted (and rotated orthogonally) from the Education Q sort, QED, and the teacher characteristics Q sort, TCQ. There were "companion" factor vectors in both the two- and three-factor solutions. That is, the same judges tended to cluster together in both analyses. In the two-factor solutions, the coefficients of congruence between comparable rotated factor vectors were quite high (over .90). While the three-factor solutions did not show as high congruence, it was apparent that the hypothesis was supported.

Progressive judges, as "known" and as judged by their loadings on Factor A of QED, were also loaded on Factor A of TCQ. Traditional judges loaded on TCQ Factor B.

The substantive nature of the Q factors also supported the hypothesis. TCQ Factor A's item factor array seemed to express progressive notions of what a teacher should be like: sympathetic, friendly, flexible, and the like. TCQ Factor B's item factor array, on the other hand, seemed to be congruent with the traditional teacher: conscientious, moral, efficient, self-controlled, and the like.

Studies II, III, and IV[2]

The results obtained by correlating ES and TC A and B measures are easily summarized because they were similar in all samples. ESA correlated positively and significantly with TCA, and ESB correlated positively and significantly with TCB. These correlations, however, while quite consistent from sample to sample, were at best moderate (about .40) and at worst low (about .20, sometimes less). The cross-dimension correlations, A to B and B to A, were low and seldom significant. When significant, they were usually negative. The results were much the same in all samples and with the different ES and TC scales.

The heavily replicated results, then, supported the hypotheses, though not dramatically. Assuming the validity of the measures used--actually, the validity of the measures was shown to be well beyond assumption--we can say that there is little doubt of the predicted relation between educational attitudes and perceptions of desirable teacher characteristics.

The results obtained with the ES and HT measures also supported the hypotheses. Subjects who were high on attitude A more often chose HTA descriptions than did those subjects low on the attitude A subscale. Similarly, high attitude B subjects chose HTB descriptions proportionately more often than did those subjects low on the B attitude subscale. These results were especially encouraging because of the realism of the HT task and because of the utterly different nature of the measurement procedure. We were actually not too optimistic about these results before we obtained them since the task facing the subjects was difficult and complex.[3]

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[2] For the sake of brevity, we do not summarize and discuss the usual descriptive statistics of the ES and TC scales. We should say, however, that the reliabilities of the A and B subscales of ES-VI, ES-VII, TC-I, and TC-VIII, with few exceptions, were satisfactory.

The three cross-sectional studies, then, yielded consistent results. The main question of the study--How are attitudes toward education and perceptions of desirable characteristics of teachers related?--has been answered. And the answers support the hypothesis that educational attitudes affect perceptions of teacher traits: Judges with progressive educational attitudes favor traits that are person oriented, whereas judges with traditional educational attitudes favor traits that are task oriented. Of course, these generalizations, like all such generalizations, must be interpreted probabilistically. We have no intention of implying that they apply to all judges.

Second-Order Factor Analysis, Data of Studies III and IV

In Studies III and IV, ES-VII and TC-VIII, among other measures, were administered to four samples in New York, Indiana, North Carolina, and Michigan to a total of 828 subjects. Two first- and second-order factor analyses of the combined data of the New York and Indiana samples and the combined data of the North Carolina and Michigan samples yielded highly similar results. Two types of method were used: one with four first-order factors and the other with nine or ten first-order factors. Then second-order analysis was used with each of the first-order solutions. The four-factor solutions of both samples yielded two very clear second-order solutions in which the first-order ESA and TCA factors--the ESA, ESB, TCA, and TCB sets of items loaded on separate first-order factors--loaded on one second-order factor, and the ESB and TCB factors loaded on the other factor.

The second type of second-order solution was more stringent in that many first-order factors were extracted and similarly analyzed. The results were much the same, however. The ESA and TCA factors fell on one second-order factor, and the ESB and TCB factors, with one exception, fell on the other second-order factor. It seems quite clear that two large factors or unities underlie the responses to the items and the first-order factors of the two scales and their four subscales, even though the attitude and perception items clustered on separate first-order factors. In other words, although the attitude and perception domains are separate and distinct entities, they seem to belong to the same underlying larger domains which we believe to be progressivism and traditionalism. In any case, the basic hypothesis was rather strongly supported by the second-order analysis. We considered these analyses as "crucial" tests of the main study hypothesis.

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[3] It must also be pointed out that our method of choosing high attitude _A_'s and _B_'s was not too satisfactory. See the discussion of this point in Chapter VII, Footnote 9.

Supplementary Factor Analytic Studies of Educational Attitudes and Teacher Trait Perceptions

The responses of teachers and graduate students of education in New York (N=344), North Carolina (N=404), and Texas (N=556) to the longest of our measures of educational attitudes, Education Scale VI, or ES-VI, were factor analyzed using first- and second-order factor analysis after preliminary statistical analysis. In the first-order analyses eight factors were extracted and rotated obliquely. There was substantial agreement among the three sets of data, though the Texas data deviated from the other two sets. The factor arrays of the New York analysis yielded two kinds of factors: one kind had progressive, or A, items, and the other kind had traditional, or B, items. The A factors seemed to reflect different types of philosophy of education. They were named Experimentalism, Reconstructionism, Life Adjustment, and Romantic Naturalism. The B factors were quite different in kind. They were Criticism of the Schools, Educational Conservatism, and Learning as Knowledge Storehouse. (An eighth factor was unnamed because it had only two items on it.)

The second-order results were very clear. Two second-order factors emerged on one of which the A first-order factors were loaded, while on the other the B factors were loaded. These two "larger" factors were relatively orthogonal to each other and there was little sign of bipolarity. The second-order factor loadings were plotted on a two-dimensional graph. The A factor loadings clustered near one axis, and the B loadings near the other axis. No loadings fell in the space between the axes, and only one factor had a substantial negative loading. These results, then, strongly support the structural theory of attitudes outlined earlier. They also support, rather strongly, our contention about the "reality" of progressivism and traditionalism.

The longest of the scales constructed to measure perceptions of desirable characteristics of teachers, Teacher Characteristics Scale I, TC-I, was also administered to the same three samples of teachers and graduate students of education. Again, first- and second-order factor analysis was used after preliminary statistical analysis. But in this case the second-order analysis was not too successful since the results of the three samples did not agree as well as expected when more than four first-order factors were extracted from the data even though the obliquely rotated factor matrices showed that the same general factor structure was present in the three sets of data. We concentrated, therefore, on the four-factor results, which agreed remarkably well.

The substantive nature of the teacher trait perception factors was judged by four experts. The judgments led to the following factor names: Positive Person Orientation, Systematic Task Organization, and Functional Flexibility. (The fourth factor was unnamed. It had only two items on it.) The resemblance between these factors and Ryans' X_o, Y_o, and Z_o behavior observation patterns is striking. It seemed to us, too, that Person Orientation was congruent with progressive beliefs about teachers and teaching and Task Organization was congruent with traditional beliefs about teachers and teaching. These impressionistic judgments were confirmed by the analysis of the combined ES-VII and TC-VIII data reported earlier.

The second-order analysis of the four factors showed that although positively intercorrelated they separated into two second-order factors. Our judgment, also confirmed by the combined ES-VII and TC-VIII data analysis, was that one of these second-order factors was congruent with progressive educational beliefs and the other with traditional beliefs. In short, it seemed that there were two different perceptions of the desirable traits a teacher should have, and these were best characterized by the expressions person orientation and task organization, or task orientation. Moreover, these two perceptions were congruent with progressive and traditional attitudes toward education.

Contributions and Limitations: An Evaluation of the Study

What are the strengths and weaknesses of this study? What has it contributed to scientific knowledge? What has it contributed to psychological knowledge? to education and educational knowledge? On the other hand, what are its limitations? Are the limitations such as to vitiate the study's conclusions? First, we enumerate and briefly discuss what we think are the limitations and weaknesses. Some of these are probably inherent in the nature of the study. Others, however, may be our fault. Then we will discuss what we believe to be the study's contributions and strengths.

The major limitation of the study is a limitation inherent in all studies whose principal variables cannot be manipulated: its ex post facto nature. In brief, it did not seem possible to manipulate educational attitudes. And while we could see possibilities of experimental manipulation of perceptions of teacher characteristics, most of these possibilities did not seem to be pertinent to the study problem. Thus our approach was almost entirely what has been called, mistakenly we believe, correlational. The main weakness of this approach is well-known and has been discussed in detail elsewhere (Kerlinger, 1964, Ch. 20). In essence, this weakness boils down to lack of control: random assignment of subjects to groups and experimental manipulation are beyond reach. Consequently the possibility of alternative hypotheses--in effect, alternative independent variables--is stronger than it is in well-conducted experimental studies.

In defense, we can say that the problem, as stated, interested us and we reconciled ourselves to the inherent ex post facto weakness. We also tried to test alternative hypotheses (see Chapter IX) and to use other devices that we will mention later to bolster the basic weakness.

Another weakness was that we did not investigate perceptions of teacher behaviors to the extent we originally intended. The magnitude of studying the relation between educational attitudes and perceptions of teacher characteristics, as well as the basic factor structures of educational attitudes and teacher trait perceptions, deterred us from doing more than we did.

A third possible weakness lies in our measures of attitudes toward education. Certainly, it may be said, measures other than summated-rating scales should have been used. We agree. There were two reasons for restricting our work to summated-rating scales. One, earlier research with forced-choice scales (Kerlinger, 1961; Kerlinger and Kaya, 1959a) had shown that although such scales are effective they have an unfortunate characteristic: they produce spurious negative correlation between items. Their use in this study would therefore have vitiated our factor analytic purposes, which were of course vitally essential to the study. Although we were quite aware of the alleged weaknesses of summated-rating scales, our research experience with them has shown them to be quite satisfactory for the purposes of this and other studies.

The last weakness we will discuss is the rather low level of magnitude of the correlations obtained between the educational attitude and perceptions of teacher characteristics.

The highest r's were about .40, the lowest somewhat less than .20. While the results were consistent from sample to sample, they were still modest. Of course we did not expect the correlations to be high. There are probably many determinants of the appraisals of desirable teacher characteristics. But we did expect most of the correlations to be around .40 to .50. Fortunately this weakness is countered by the consistency of the correlations and by the almost dramatic results of the factor analyses of the ES and TC items together.

The study has made, we think, several contributions. They are of three kinds: theoretical, substantive, and methodological. We have labored the substantive results enough. So we state them here rather barely. First, and most important as far as this particular study is concerned, the relation between attitudes toward education and perceptions of desirable teacher characteristics seems fairly well-established. While there are certainly other determinants of such perceptions and judgments, probably more important ones, it seems that a portion of their variance is due to educational attitudes. Or, another way to view it is that the structures of the attitude and perception factors underlying the subjects' responses seem to occupy the same basic factor spaces.

The second substantive contribution is the finding on the dualistic nature of educational attitudes. To be sure, this was not a new discovery; it had been found in earlier research. The results of the earlier research, however, had been unclear: sometimes two factors, sometimes more factors were found. In the present research, the ambiguity of the earlier findings was cleared up by our use of second-order factor analysis. In any case, two relatively orthogonal second-order factors, which we identified as progressivism and traditionalism, seem to underlie educational attitudes.

A correlative contribution, though one that we cannot be quite so confident about, is the determination of the nature of the first-order educational attitude factors. In general, the progressivism factors appeared to correspond to different schools or philosophies of educational thought. This was a totally new and unexpected finding. The traditionalism factors, on the other hand, were rather different. One of the two most important of these factors (in the sense that most of the items were on them) was negativistic in tone: it was suffused with criticism of the schools. The other reflected a generalized sort of educational conservatism.

The third substantive contribution of the study was the determination of the factors and the nature of the factors underlying perceptions of desirable characteristics of teachers. The two most important of these factors seemed congruent with progressive and traditionalist notions of education, one being person orientation and the other task orientation. To strengthen this contribution, we were able to detect a clear similarity between these factors and Ryans' observational patterns: $\underline{X}o$, friendly, understanding, sympathetic teacher behavior, and $\underline{Y}o$, businesslike, systematic teacher behavior. The strong resemblances were evident in both the Q and the R factor analytic results of our study. When we observe that two of the Q factors found in the doctoral substudy of perceived desirable teacher behaviors were also markedly similar in nature to Ryans' patterns, as well as to the teacher traits factors, we feel strongly that all these investigations are bearing down on what might be important insights into the teacher characteristics problem.

The study made two contributions that can be called theoretical. Neither of them was a direct contribution, however. The first was to show the fruitfulness of using psychological theory in educational research. Central directive-state theory was invoked to account for the presumed relations between attitudes and perceptions. Assuming their validity, the positive results obtained not only add to educational knowledge; they also furnish more evidence for the validity of the theory. We will return to this point at the end of the chapter.

The second theoretical contribution was to add evidence that speaks for the empirical validity of the structural and dualistic theory of attitudes discussed earlier. Indeed, the results obtained during the study stimulated the statement of the theory (Kerlinger, 1967a). Before the study began, the theory's main outlines had been conceptualized, but it had not been systematically and tightly developed. The work and interim results of the study can be said to have helped, even compelled, the theory's broader and tighter formulation. We have here, in other words, a good case of theory-research symbiosis: the theory stimulated and helped the research, and the results of the research stimulated and helped the theory.

The remaining contributions or strengths of the study are methodological. The first of these was the use of both Q methodology and R methodology to study the basic problem. We saw that the results of both approaches were quite similar and reinforced each other. In this case, too, Q methodology seemed to be a good way to explore perceptions of teacher characteristics. That the factor analyses and factor arrays of both approaches agreed so well--though there were discrepancies, of course--also reinforces our notions of what the factors underlying teacher trait perceptions are.

Another methodological contribution, which in fact surprised us with its efficacy, was the idea of a situational instrument to measure trait perceptions. Hiring Teachers I and Hiring Teachers III accomplished their study purposes rather well. They evidently aroused the interest and attention of our subjects due, very probably, to their realistic quality. From the point of view of general measurement, unfortunately, these instruments have drawbacks. They are difficult to respond to due to their complexity, and they do not yield scores that have the desirable psychometric properties that most conventional instruments do. One cannot, for example, legitimately calculate the usual statistics or do a factor analysis of responses with them. Nevertheless, we believe such measures can be important adjuncts of other instruments in many behavioral research studies.

A third methodological contribution the study made was discussed at length earlier. The measurement of educational attitudes has been advanced considerably, we believe. While much more needs to be done--for example, many more attitude items and different kinds of measurement are needed--a number of years of work was completed and rounded off in the project.

The measurement of teacher trait perceptions, too, seems to have been successful. The area is large and of course we only really began to open it up. But at least our methods and results may help others develop the work further.

An important methodological strength of the study was the heavy replication we used. While none of the samples were random, they were obtained in many different places with similar and consistent results. We therefore believe the results to be representative even though we cannot say they are representative. We are quite aware that it is possible to obtain consistent but misleading results from different samples and replications. In other words, it is possible to have high external validity and low internal validity. Some of our earlier discussions were directed to the internal validity of the study. In any case, we at least know that the findings are consistent and replicable--with similar samples, of course.

The "control" studies discussed in Chapter IX were in two senses mostly negative in outcome. One, we were uniformly unsuccessful in increasing the magnitude of the correlations between educational attitudes and teacher trait perceptions. Two, few of the "supplementary" variables we studied yielded significant correlations with our principal variables. But such results were pretty much what we "wanted." For example, we did not want response set variables and intelligence to correlate significantly with the principal variables. That the educational variables years of teaching experience, educational level, and sex yielded no consistent patterns is to the good. Evidently they make little or no difference to the ES-TC relations. Those variables that did correlate significantly with the principal variables for the most part supported the study's purposes. For example, the results obtained with the Stern attitude scale, the MTAI, and the social attitude scale were generally in line with our expectations and supported the study findings.

The final methodological contributions were in our opinion the most important, at least in this study: the "double" and second-order factor analyses. Recall that the items of an educational attitude scale (ES-VII) and a perception of desirable teacher characteristics scale (TC-VIII) were factor analyzed together. By doing this we were able to show that the attitude and perception items were factorially discriminable, but that when second-order analysis was used they came together in second-order factor space, a most gratifying result. While we are not naive enough to believe that the method is without flaws, we do believe that it is a powerful device for studying complex relations. And in this case at least it worked beyond our expectations.

The second-order factor analysis of the educational attitude domain was indispensable to the study. As we said earlier, it enabled us to clear up the many-factors few-factors paradox and, more important, provided rather rigorous tests of the attitude duality hypothesis and the basic hypothesis.

Implications for Research and Educational Practice

Of the several implications of the study and its findings, the most obvious is the most important. If the findings are generally valid, it is clear that educators cannot discuss desirable characteristics (and probably behaviors) of teachers without at the same time discussing the educational attitudes of the individuals who make judgments of teacher characteristics and behaviors. We suspect, as we said in the beginning of this report, that perceptions and judgments of any professionals are colored by the major attitudes associated with that field. Just so, in education the perceptions and judgments of teachers are colored by the judges' attitudes toward objects of major educational concern. In other words, before trying to decide or determine the desirable traits and behaviors of teachers, we have to decide upon what we will consider to be the "correct" attitudinal, and perhaps philosophical, basis of our judgments.

Do the educational attitudes of administrators, supervisors, and board of education members influence decisions on the hiring and firing of teachers? We do not know, of course; we have no direct evidence. We believe, however, that attitudes are an important component of such decisions and many other decisions in education. Are school district votes on broad issues, district mergers, and school budgets influenced by the educational attitudes--and the general social attitudes--of voting community members? Again, our study says nothing directly. It strongly hints, nevertheless, that such is the case. The findings of Gross, Mason, and McEachern (1958) and Kimbrough (1964) seem to support our belief.

Similarly, to assess the worth of educational and teaching debates, we should know something of the attitudes toward education of the debaters. It would be theoretically and practically interesting, for instance, to know the educational attitudes (other than can be inferred from public utterances) of men like Hutchins, Adler , and Bestor. While we know there must be a proportion of objective and rational thinking and speaking in such debates, we also believe that attitudes exercise considerable influence.

A second important practical implication is that teachers in training might well be exposed to the notions that there are different attitudes toward education, that there are different perceptions of desirable traits of teachers, and that the two are related. We can think of few better ways to sensitize teachers and future teachers to some of the important issues and problems of education and to the important but difficult and baffling problem of the effective teacher.

The remaining implications we will mention might be called methodological, though the first of them touches upon both the methodological and the substantive aspects of research. It is simple: whenever possible, relevant psychological, sociological, and social psychological theory should be used in educational research. Even when the theory as such can only be loosely tested, as in the present study, its use is valuable mainly because it guides research and furnishes the basis for extrapolated hypotheses. And any research is stronger when guided by interrelated constructs and hypotheses.

A clearly methodological implication is that situational instruments like our Hiring Teachers scales and the Teachers at Work scales may have a good deal to contribute to educational and psychological research. Although there are difficult technical problems to be solved, such measures seem to us most promising.

The possibility of using both Q and R methodologies to approach the same research problem seems to us to be an implication of some importance. One of the main virtues of using both approaches is that they are so different. Consequently, if the results from both agree rather well, then the validity of a study's findings are increased. Such agreement between the Q and R results was shown in this study.

The next implication of the study is not an implication in the usual sense of the term. It points up, rather, a need. We think that a good deal more research needs to be done to clear up older areas and open up newer ones. For example, while we think we have accomplished a good deal in measuring attitudes toward education and perceptions of teacher characteristics, it is obvious that much more has to be done. Although in earlier years we started with a large number of educational attitude items, we are now nagged by the fear that our items do not adequately cover the educational attitude domain. Similarly, we would feel better if we had used more trait adjectives than we did use--even though the original pool of items was very large.

It is obvious, too, that we did little with perception of teacher behaviors. While evidently a more difficult area than teacher traits, research into the congruence of trait and behavior perceptions, for instance, is needed. Even more, of course, research into the relations between perceived traits and behaviors and actual teacher behaviors is needed. We found, in both the study of traits and the study of behaviors, that there was surprising congruence between our factors and Ryans' $\underline{X}_o$, $\underline{Y}_o$, and $\underline{Z}_o$ observation patterns. More direct investigation seems desirable.

Although our efforts to use "pure" factor measures yielded little further information, we think that the matter should be pursued further. Will "pure" factor measures of both independent and dependent variables sharpen knowledge of the relations among psychological variables? We do not know.

One of the most important implications of the study--and the final one we will consider--is difficult. Theory, especially social psychological and cognitive theory, is badly needed in educational research studies of this kind. In this study we borrowed one theory and developed another to help our work. The fair success of our efforts makes us believe that many educational research studies might be enhanced by similar efforts to adopt existing theories, especially psychological and sociological theories, but even more by efforts to develop theories to account for the many and varied relations of educational research. For example, an embryo theory of risk taking has been developing in recent years (Kogan and Wallach, 1967). Researchers interested in educational decision making may well be able to help develop risk-taking notions into a theory of decision making. It would not be difficult to find many other interesting and significant examples.

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APPENDIX

Education Q-Sort

1a: Restrictive Teaching-Subject Matter-Curriculum

1. Schools of today are neglecting the three R's.

21. Learning is essentially a process of increasing one's store of information about the various fields of knowledge.

39. The curriculum should contain an orderly arrangement of subjects that represent the best of our cultural heritage.

46. The curriculum consists of subject matter to be learned and skills to be acquired.

47. Each subject and activity should be aimed at developing a particular part of the child's makeup: physical, intellectual, social, moral, or spiritual.

51. The true view of education is so arranging learning that the child gradually builds up a store house of knowledge that he can use in the future.

55. It is unrealistic to expect education to be like real life; it is more a preparation for life.

63. The movement to substitute "activities" for "subjects" in the curriculum of the modern school will operate against the best interests of American education.

68. Courses of study should be carefully broken down into logical units of study.

80. The backbone of the school curriculum is subject matter; activities are useful mainly to facilitate the learning of subject matter.

1b: Restrictive Interpersonal Relations

6. The relationship between principal and teacher should be friendly but impersonal if the principal is to be able to run a good school.

17. Modern methods of teaching tend to make children think about themselves and others too much.

25. Teachers should not have to be concerned with the problems of pupils getting along with each other; they have enough to do teaching their subjects.

29. The pupil-teacher relationship is the relationship between a child who needs direction, guidance, and control and a teacher who is an expert supplying direction, guidance and control.

34. Teachers need to keep somewhat apart from parents if they are to maintain their educational integrity.

36. Good teachers maintain a certain distance between themselves and pupils.

60. There should be less emphasis in schools on the feelings of children and on their reactions to each other and to their teachers.

64. With the many demands made upon them, especially for adequate teaching of the basic subjects, we can hardly expect teachers to be too concerned with the personal and social adjustment of children.

72. If principals and superintendents are to be impartial and objective, they must maintain a certain distance between themselves, on the one hand, and teachers and pupils, on the other hand.

79. The good teacher is she who disregards the likes and dislikes of children for herself and for other children and does her job calmly and well, always keeping in mind the ultimate objectives of education.

1k: Restrictive Normative

5. Since life is essentially a struggle, education should emphasize competition and the fair competitive spirit.

12. The school is and should be a socially neutral institution; it should not take a stand on social issues.

44. All children are entitled to education on the elementary level, but this principle must be somewhat restricted on the high school level if we are to be properly able to educate the more gifted children.

48. The teacher who invokes the Fifth Amendment should be suspended forthwith.

49. School children should be punished if caught indulging in sexual behavior.

58. It would be better if teachers did not encourage the discussion of economic and political issues in classes; they are too controversial for young people to handle properly.

69. The school can do little about such difficult social problems as prejudice and discrimination; attempts to do something about them are often likely to aggravate the situation.

71. To have adequate democratic education, the teacher should teach and the administrator administrate; to mix the two functions is poor policy and even defeating of the school's basic purpose.

74. Public education is too secular; there is too little emphasis on religious values.

77. The idea that the rights of minority groups must be protected is good, but this should not mean that the rights of majority group members should be violated by legal provisions which force the mingling in public schools of Negroes and whites.

1m: Restrictive Authority-Discipline

4. What education needs most, more than books and theories, is a few courageous, tireless, devoted leaders in whom teachers can put their faith.

8. Discipline should be governed by long-range interests and well-established standards.

20. Science has certainly carried man far, but there are many important things, especially in education, that can never possibly be understood by the human mind.

22. Schools should teach children dependence on higher moral values.

23. Children need and should have more supervision and discipline than they usually get.

31. One of the big difficulties with modern schools is that discipline is often sacrificed to the interests of children.

38. Teachers need to be guided in what they are to teach. No individual teacher can be permitted to do as he wishes, especially when it comes to teaching children.

43. A good administrator discusses important matters of educational policy with his subordinates when he needs to.

53. The organization of instruction and learning must be centered on universal ideas and truths if education is to be anything more than passing fads and fancies.

70. It is essential for learning and effective work that teachers outline in detail what is to be done and how to go about it.

2a: Permissive Teaching-Subject Matter-Curriculum

2. Knowledge and subject matter themselves are not so important as learning to solve problems.

3. Courses of study should be centered around major ideas or problems rather than around subject matter to be learned.

11. Education is growth toward the capacity for more growth.

15. It is probably not desirable to require that every citizen master a common body of knowledge.

30. We should fit the curriculum to the child and not the child to the curriculum.

33. The goals of education should be dictated by children's interests and needs, as well as by the larger demands of society.

41. Learning experiences organized around life experiences rather than around subjects is desirable in our schools.

50. Education is not so much imparting knowledge as it is encouraging and prompting the child to use his potentialities for learning.

65. Children should be taught a problem-solving approach, and this approach should pervade all subject matter and teaching.

66. Right from the very first grade, teachers must teach the child at his own level and not at the level of the grade he is in.

2b: Permissive Interpersonal Relations

10. There must be a relationship of equality and amity between administrators and teachers before we can call a school educationally successful.

19. The social ends of education, in the sense of teaching children to be sensitive to each other's personalities, needs, and wishes, while perhaps not the most important function of education, is certainly one of the most important functions.

28. Children must have social experiences under intelligent guidance so that they can learn to live and work with other people.

45. Good teaching implies that the teacher is sensitive to the likes and dislikes of her pupils for each other.

52. The healthy interaction of pupils one with another is probably just as important in school as the learning of subject matter.

54. If both parents and teachers would make greater efforts to be friendly and to understand each other, education could be very much improved.

57. Teacher-training institutions should give just as much weight to the study of human relations as to the study of subject matter fields.

61. No subject is more important than the personalities of the pupils.

67. The best teachers are those who set as their primary goal the building of good feelings and relations in their classrooms.

78. A primary function of education is to teach children to get along with and understand each other.

2k: Permissive Normative

14. Teachers have a right to have unions to protect their rights and advance their interests.

18. Full discussion of social, economic, and political affairs must be promoted in schools, because such discussion is the best assurance that youngsters will understand both the promise of democracy and the dangers that threaten it.

26. The grading system (A, B, C, etc.) should probably be abolished in the elementary school.

32. All people, whether or not they have children in school, should be taxed for public education.

35. All children, whether Negro, Jew, Catholic, Protestant, or what not, are entitled to full equality of opportunity in education, even to the extent of not permitting involuntary separation of races and religions in the public schools.

37. In a democracy, teachers should help students understand not only the meaning of democracy but also the meaning of the ideologies of other political systems.

56. It is necessary that Americans understand Communism. Thus, American children should learn what Communism is, just as they learn what democracy is.

59. Sex instruction should be given before adolescence.

73. Such evidence as there is indicates that today's graduates of the public schools read, write, and understand what they read better than did the young people of a generation ago.

76. Education and educational institutions must be sources of new social ideas; education must be a social program undergoing continual reconstruction.

2m: Permissive Authority-Discipline

7. When the purpose of discipline is to make the child suffer, he is justified in resenting those who punish him.

9. Pupils should be encouraged to evaluate their teachers since they must learn to evaluate other people all their lives.

13. Children should be taught that all problems should be subjected to critical and objective scrutiny, including religious, moral, economic, and social problems.

16. One of the important functions of good school administration is to help promote teacher participation in deciding educational policy.

24. Teachers should encourage pupils to study and criticize our own and other economic systems and practices.

27. The traditional moral standards of our culture should not just be accepted; they should be examined and tested in solving the present problems of students.

40. True discipline springs from interest, motivation, and involvement in live problems.

42. Teachers, like university professors, should have academic freedom - freedom to teach what they think is right and best.

62. Children should be allowed more freedom than they usually get in the execution of learning activities.

75. Learning is experimental; the child should be taught to test alternatives before accepting any of them.

Items of Teacher Characteristics *Q* Sort

1. Systematic
2. Responsive
3. Adaptable
4. Cooperative
5. Reliable
6. Trustworthy
7. Tolerant
8. Consistent
9. Agreeable
10. Just
11. Persevering
12. Decisive
13. Quiet
14. Energetic
15. Open-minded
16. Serious
17. Resourceful
18. Warm
19. Punctual
20. Flexible
21. Purposeful
22. Insightful
23. Sociable
24. Religious
25. Forceful
26. Sincere
27. Healthy
28. Patient
29. Liberal
30. Progressive
31. Confident
32. Zestful
33. Neat
34. Fair
35. Polite
36. Calm
37. Scholarly
38. Independent
39. Conservative
40. Sensitive
41. Humorous
42. Sensible
43. Wise
44. Conscientious
45. Imaginative
46. Self-Respecting
47. Considerate
48. Cheerful
49. Alert
50. Thorough
51. Definite
52. Intelligent
53. Objective
54. Fluent
55. Attractive
56. Original
57. Spontaneous
58. Careful
59. Approachable
60. Kind
61. Gentle
62. Refined
63. Dependable
64. Poised
65. Sympathetic
66. Enthusiastic
67. Zealous
68. Efficient
69. Steady
70. Moral
71. Strict
72. Practical
73. Impartial
74. Industrious
75. Reserved
76. Self-Controlled
77. Friendly
78. Firm
79. Pleasant
80. Exacting
81. Likeable
82. Respectable
83. Receptive
84. Inquisitive
85. Orderly
86. Studious
87. Good-Natured
88. Learned
89. Relaxed
90. Thoughtful

Education Scale

Instructions: Given below are 20 statements on educational ideas and problems about which we all have beliefs, opinions, and attitudes. We all think differently about such matters, and this scale is an attempt to let you express your beliefs and opinions. Respond to each of the items as follows:

Agree Very Strongly: + 3
Agree Strongly: + 2
Agree: + 1

Disagree Very Strongly: - 3
Disagree Strongly: - 2
Disagree: - 1

For example, if you agree very strongly with a statement, you would write + 3 on the short line preceding the statement, but if you should happen to disagree with it, you would put - 1 in front of it. Respond to each statement as best you can. Go rapidly but carefully. Do not spend too much time on any one statement; try to respond and then go on.

A 1. The goals of education should be dictated by children's interests and needs, as well as by the larger demands of society.

A 2. No subject is more important than the personalities of the pupils.

B 3. Schools of today are neglecting the three R's.

B 4. The pupil-teacher relationship is the relationship between a child who needs direction, guidance, and control and a teacher who is an expert supplying direction, guidance, and control.

A 5. Teachers, like university professors, should have academic freedom--freedom to teach what they think is right and best.

B 6. The backbone of the school curriculum is subject matter; activities are useful mainly to facilitate the learning of subject matter.

A 7. Teachers should encourage pupils to study and criticize our own and other economic systems and practices.

A 8. The traditional moral standards of our culture should not just be accepted; they should be examined and tested in solving the present problems of students.

A 9. Learning is experimental; the child should be taught to test alternatives before accepting any of them.

B 10. The curriculum consists of subject matter to be learned and skills to be acquired.

B 11. The true view of education is so arranging learning that the child gradually builds up a storehouse of knowledge that he can use in the future.

B 12. One of the big difficulties with modern schools is that discipline is often sacrificed to the interests of children.

B 13. The curriculum should contain an orderly arrangement of subjects that represent the best of our cultural heritage.

B 14. Discipline should be governed by long-range interests and well-established standards.

A 15. Education and educational institutions must be sources of new social ideas; education must be a social program undergoing continual reconstruction.

A 16. Right from the very first grade, teachers must teach the child at his own level and not at the level of the grade he is in.

A 17. Children should be allowed more freedom than they usually get in the execution of learning activities.

B 18. Children need and should have more supervision and discipline than they usually get.

B 19. Learning is essentially a process of increasing one's store of information about the various fields of knowledge.

A 20. In a democracy, teachers should help students understand not only the meaning of democracy but also the meaning of the ideologies of other political systems.

Education Scale VI

Instructions: See Education Scale on page 241.

B 1. Schools of today are neglecting the three R's.

B 2. The backbone of the school curriculum is subject matter; activities are useful mainly to facilitate the learning of subject matter.

A 3. Teaching should be based on the present needs of the child.

A 4. The American public school should take an active part in stimulating social change.

A 5. The traditional moral standards of our culture should not just be accepted; they should be examined and tested in solving the present problems of students.

B 6. The curriculum should contain an orderly arrangement of subjects that represent the best of our cultural heritage.

A 7. The healthy interaction of pupils one with another is just as important in school as the learning of subject matter.

B 8. The mind of the child must be well-trained if it is to perform its function properly later in life.

A 9. Children should be allowed more freedom than they usually get in the execution of learning activities.

A 10. Right from the very first grade, teachers must teach the child at his own level and not at the level of the grade he is in.

B 11. Learning is essentially a process of increasing one's store of information about the various fields of knowledge.

B 12. Many schools waste time and money on fads and frills: activity programs, driver education, swimming pools, social services, and the like.

A 13. Education and educational institutions must be sources of new social ideas; education must be a social program undergoing continual reconstruction.

A 14. The learning of proper attitudes is often more important than the learning of subject matter.

A 15. Learning experiences organized around life experiences rather than around subjects is desirable in our schools.

B 16. It is essential for learning and effective work that teachers outline in detail what is to be done and how to go about it.

B 17. The true view of education is so arranging learning that the child gradually builds up a storehouse of knowledge that he can use in the future.

B 18. Teachers need to be guided in what they are to teach. No individual teacher can be permitted to do as he wishes, especially when it comes to teaching children.

A 19. Emotional development and social development are as important in the evaluation of pupil progress as academic achievement.

A 20. It is more important that the child learns how to approach and solve problems than it is for him to master the subject matter of the curriculum.

A 21. Learning is experimental; the child should be taught to test alternatives before accepting any of them.

B 22. The curriculum consists of subject matter to be learned and skills to be acquired.

B 23. Each subject and activity should be aimed at developing a particular part of the child's makeup: physical, intellectual, social, moral, or spiritual.

A 24. Teachers should encourage pupils to study and criticize our own and other economic systems and practices.

B 25. Since life is essentially a struggle, education should emphasize competition and the fair competitive spirit.

A 26. True discipline springs from interest, motivation, and involvement in live problems.

A 27. We should fit the curriculum to the child and not the child to the curriculum.

B 28. The organization of instruction and learning must be centered on universal ideas and truths if education is to be more than passing fads and fancies.

B 29. Teachers should keep in mind that pupils have to be made to work.

A 30. Education and educational institutions must be sources of new social ideas.

A 31. Teachers should be free to teach what they think is right and proper.

B 32. Schools should teach children dependence on higher moral values.

B 33. What is needed in the modern classroom is a revival of the authority of the teacher.

B 34. It is unrealistic to expect education to be like real life; it is more a preparation for life.

B 35. One of the basic purposes of education is to conserve and transmit the values and standards of the society of which it is a part.

A 36. The goals of education should be dictated by children's interests and needs, as well as by the larger demands of society.

A 37. Subjects like communism and capitalism should be studied in the public schools.

B 38. The modern public school is sacrificing too much of our cultural heritage in its preoccupation with life-adjustment and group living.

B 39. One of the big difficulties with modern schools is that discipline is often sacrificed to the interests of children.

B 40. Subjects that sharpen the mind, like mathematics and foreign languages, need greater emphasis in the public school curriculum.

A 41. Children should be taught that all problems should be subjected to critical and objective scrutiny, including religious, moral, economic, and social problems.

B 42. The movement to substitute "activities" for subjects in the curriculum of the modern school will operate against the best interests of American education.

A 43. Standards of work should not be the same for all pupils; they should vary with the pupil.

B 44. Children need and should have more supervision and discipline than they usually get.

A 45. Education is not so much imparting knowledge as it is encouraging and prompting the child to use his potentialities for learning.

A 46. In a democracy, teachers should help students understand not only the meaning of democracy but also the meaning of the ideologies of other political systems.

Education Scale VII

Instructions: See Education Scale on page 241.

B 1. Learning is essentially a process of increasing one's store of information about the various fields of knowledge.

B 2. The curriculum consists of subject matter to be learned and skills to be acquired.

A 3. The learning of proper attitudes is often more important than the learning of subject matter.

A 4. It is more important that the child learn how to approach and solve problems than it is for him to master the subject matter of the curriculum.

B 5. The true view of education is so arranging learning that the child gradually builds up a storehouse of knowledge that he can use in the future.

B 6. What is needed in the modern classroom is a revival of the authority of the teacher.

B 7. Teachers should keep in mind that pupils have to be made to work.

B 8. Schools of today are neglecting the three R's.

A 9. Standards of work should not be the same for all pupils; they should vary with the pupil.

A 10. The goals of education should be dictated by children's interests and needs, as well as by the demands of society.

B 11. Each subject and activity should be aimed at developing a particular part of the child's makeup: physical, intellectual, social, moral, or spiritual.

A 12. Right from the very first grade, teachers must teach the child at his own level and not at the level of the grade he is in.

B 13. Teachers need to be guided in what they are to teach. No individual teacher can be permitted to do as he wishes, especially when it comes to teaching children.

A 14. Learning experiences organized around life experiences rather than around subjects is desirable in our schools.

A 15. We should fit the curriculum to the child and not the child to the curriculum.

B 16. Subjects that sharpen the mind, like mathematics and foreign languages, need greater emphasis in the public school curriculum.

B 17. Since life is essentially a struggle, education should emphasize competition and the fair competitive spirit.

A 18. The healthy interaction of pupils one with another is just as important in school as the learning of subject matter.

B 19. The organization of instruction and learning must be centered on universal ideas and truths if education is to be more than passing fads and fancies.

B 20. The curriculum should contain an orderly arrangement of subjects that represent the best of our cultural heritage.

A 21. True discipline springs from interest, motivation, and involvement in live problems.

A 22. Emotional development and social development are as important in the evaluation of pupil progress as academic achievement.

A 23. Education and educational institutions must be sources of new social ideas.

A 24. Children should be taught that all problems should be subjected to critical and objective scrutiny, including religious, moral, economic, and social problems.

B 25. One of the big difficulties with modern schools is that discipline is often sacrificed to the interests of children.

A 26. Teachers should encourage pupils to study and criticize our own and other economic systems and practices.

B 27. Children need and should have more supervision and discipline than they usually get.

B 28. Schools should teach children dependence on higher moral values.

A 29. The public school should take an active part in stimulating social change.

A 30. Learning is experimental; the child should be taught to test alternatives before accepting any of them.

T-C Scale I

Instructions: Given below are 38 adjectives which can be used to describe people. In this case we would like you to use the adjectives to describe the "good teacher." You should judge each trait as to its importance for a good teacher to have. Try to be general in your judgments. That is, do not limit yourself to elementary school teachers, say, or to college teachers. In cases of doubt, however, where you feel you must label your good teacher, think of the public school teacher. In other words, we would like to have your considered judgment on how important it is for teachers to have the traits. (By "having the traits" we mean having a good deal of them or having little of them.)

Use the following system in judging the traits. If you think a trait is extremely important to have, put a 7 in the space provided before the trait. If you think the trait is very important for a teacher to have, put a 6 before it. Use the numbers 5,4,3,2, and 1 similarly, the amount of judged importance decreasing with the numbers so that 1 would mean very unimportant or of no importance at all. Try to use the whole scale of numbers. Don't, for example, say that a teacher should have all or most of the traits (by putting high numbers, such as 6 or 7, on all or most of them). In short, be as discriminative as you can.

N 1. Polite
A 2. Open-Minded
A 3. Considerate
A 4. Friendly
N 5. Agreeable
B 6. Industrious
B 7. Efficient
A 8. Sympathetic
A 9. Insightful
A 10. Purposeful
B 11. Religious
N 12. Original
A 13. Sensitive
B 14. Thorough
B 15. Moral
B 16. Approachable
N 17. Pleasant
N 18. Poised
B 19. Healthy
N 20. Progressive
B 21. Reliable
B 22. Self-Controlled
N 23. Sensible
B 24. Just
B 25. Punctual
A 26. Kind
A 27. Warm
A 28. Fair
B 29. Firm
B 30. Conscientious
B 31. Learned
A 32. Flexible
N 33. Thoughtful
N 34. Humorous
A 35. Imaginative
A 36. Tolerant
A 37. Alert
N 38. Cheerful

TC-VIII

Instructions: See T-C Scale I on page 250.

B 1. Industrious

A 2. Thoughtful

A 3. Original

A 4. Insightful

A 5. Friendly

B 6. Sensible

A 7. Open-Minded

B 8. Efficient

B 9. Reliable

A 10. Flexible

B 11. Poised

A 12. Warm

A 13. Tolerant

A 14. Imaginative

B 15. Firm

B 16. Conscientious

B 17. Punctual

A 18. Sensitive

B 19. Learned

B 20. Thorough

A 21. Sympathetic

B 22. Self-Controlled

Social Attitudes Scale

Instructions: See Education Scale on page 241.

B 1. Individuals who are against churches and religions should not be allowed to teach in colleges.

A 2. Large fortunes should be taxed fairly heavily over and above income taxes.

A 3. Both public and private universities and colleges should get generous aid from both state and federal governments.

B 4. Science and society would both be better off if scientists took no part in politics.

A 5. Society should be quicker to throw out old ideas and traditions and to adopt new thinking and customs.

A 6. To ensure adequate care of the sick, we need to change radically the present system of privately controlled medical care.

B 7. If civilization is to survive, there must be a turning back to religion.

B 8. A first consideration in any society is the protection of property rights.

B 9. Government ownership and management of utilities leads to bureaucracy and inefficiency.

B 10. If the United States takes part in any sort of world organization, we should be sure that we lose none of our power and influence.

A 11. Funds for school construction should come from state and federal government loans at no interest or very low interest.

B 12. Inherited racial characteristics play more of a part in the achievements of individuals and groups than is generally known.

A 13. Federal Government aid for the construction of schools is long overdue, and should be instituted as a permanent policy.

A 14. Our present economic system should be reformed so that profits are replaced by reimbursements for useful work.

A 15. Public enterprises like railroads should not make profits; they are entitled to fares sufficient to enable them to pay only a fair interest on the actual cash capital they have invested.

B 16. Government laws and regulations should be such as first to ensure the prosperity of business since the prosperity of all depends on the prosperity of business.

A 17. All individuals who are intellectually capable of benefiting from it should get a college education, at public expense if necessary.

B 18. The well-being of a nation depends mainly on its industry and business.

A 19. True democracy is limited in the United States because of the special privileges enjoyed by business and industry.

A 20. The gradual social ownership of industry needs to be encouraged if we are ever to cure some of the ills of our society.

B 21. There are too many professors in our colleges and universities who are radical in their social and political beliefs.

B 22. There should be no government interference with business and trade.

B 23. Some sort of religious education should be given in public schools.

A 24. Unemployment insurance is an inalienable right of the working man.

B 25. Individuals with the ability and foresight to earn and accumulate wealth should have the right to enjoy that wealth without government interference and regulations.

A 26. The United Nations should be whole-heartedly supported by all of us.

Hiring Teachers

Instructions: Imagine that you are the superintendent of a medium-size school district. In hiring teachers it is you who recommends the best candidates to the board of education. The board always approves your recommendations. You have six positions open for the new year and eighteen applicants for the positions. You must select six of the eighteen applicants and recommend that these six be hired by the board of education. Summary descriptions of the backgrounds and characteristics of the eighteen teachers are given below. Read through all the summaries. Then go back and study them. Then pick the teacher you would first recommend. Then go through the list and pick the teacher among the remaining applicants you would next recommend. Do the same until you have picked six teachers. It is these six teachers you will recommend to the board of education.

In choosing the teachers, choose each one separately and independently. That is, do not allow your choice of one teacher to influence your choice of another teacher. To make sure that your choices are independent, imagine each time that you are choosing and recommending only that one teacher to the board of education. On the form passed out with these descriptions make checks beside the numbers that correspond to the six teachers you have chosen.

1. Dorothy Palter. Age 27. B.S., City College; M.A., Univer-
sity of Buffalo. Has four years teaching experience. All
A of it is satisfactory. Her recommendations are good.
She has been described by reliable sources as sensitive,
purposeful, open-minded, patient, imaginative, and warm.

2. Davida Lester. Age 27. Single. B.S., University of
Buffalo; M.A., City College. Has seven years teaching
B experience, all of it satisfactory. Her recommendations
are good. She has been described by reliable sources as
industrious, firm, efficient, moral, dependable, and
self-controlled.

3. Joan Macomber. Age 25. Single. B.S., Potsdam State
Teachers College; M.A., Teachers College, Columbia Univer-
A sity. Has six years teaching experience, all of it satis-
factory. Her recommendations are good. She has been
described reliably as insightful, enthusiastic, sympa-
thetic, flexible, kind, and purposeful.

4. Mary Helson. Age 25. Single B.S., Oswego State Teachers
College; M.A. Teachers College, Columbia University. Has
N five years teaching experience, all of it satisfactory.
She is well recommended. Reliably described as agreeable,
responsive, humorous, likeable, sensible, and objective.

5. Katherine Machlin. Age 26. Single. B.S., Oneonta State
Teachers College; M.A., Teachers College, Columbia Uni-
B versity. Has five years teaching experience. All of it
is satisfactory. Comes well recommended. Is described
by reliable sources as firm, conscientious, self-control-
led, efficient, reliable, and thorough.

6. Ruth Jackson. Age 25. Single, B.S., Potsdam State
Teachers College; M.A. New York University. Has six
B years teaching experience. All of it has been satisfac-
tory. Her recommendations are good. She has been reli-
ably described as industrious, conscientious, just, refined,
healthy, and efficient.

7. Estelle Johnson. Age 27. Single. B.S., Ohio State
University; M.A., New York University. Has four years
B teaching experience, all of it satisfactory. Her recom-
mendations are good. Reliable sources describe her as
conscientious, just, self-controlled, refined, dependable,
and thorough.

8. Marion Johnson. Age 26. Single. B.S., New York Uni-
versity; M.A., Teachers College, Columbia University.
A Has five years teaching experience, all of it satisfac-
tory. She comes well recommended. She has been described
reliably as imaginative, warm, open-minded, flexible,
friendly, and sensitive.

9. May Forsyth. Age 24. Single. B.S., Ohio State Univer-
sity; M.A., University of Michigan. Has six years teach-
N ing experience; it is all satisfactory. Her recommenda-
tions are good. Reliable sources say that she is consis-
tent, pleasant, impartial, gentle, thoughtful, and good-
natured.

10. Elfrieda Masterson. Age 26. Single. B.S., University
of Buffalo; M.A., New York University. Has five years
N teaching experience, all of it satisfactory. She is
well recommended. Reliable sources say that she is
objective, good-natured, likeable, impartial, energetic,
and gentle.

11. Esther Alsop. Age 26. Single. B.S., New York University; M.A., Teachers College, Columbia University. Has
B four years teaching experience, all of it satisfactory. Her recommendations are good. Reliable evidence indicates that she is firm, moral, efficient, reliable, approachable, and just.

12. Emily Withers. Age 27. Single. B.S., New York University; M.A. Teachers College, Columbia University. Has
N four years teaching experience, all of it satisfactory. She is well recommended. Reliable sources describe her as good-natured, objective, pleasant, responsive, energetic, thoughtful.

13. Gertrude Lester. Age 26. Single. B.S., Ohio State University; M.A. University of Michigan. Has six years
A teaching experience. All of it is satisfactory. Her recommendations are good. Reliable sources say that she is resourceful, warm, imaginative, sincere, fair, and insightful.

14. Ruth Simpson. Age 24. Single. B.S., Potsdam State Teachers College; M.A. New York University. Has five
A years teaching experience, all of it satisfactory. Her recommendations are good. Reliable evidence indicates that she is insightful, flexible, purposeful, enthusiastic, fair, and sympathetic.

15. Doris Harrison. Age 25. Single. B.S., Ohio State University; M.A., New York University. Has six years
A teaching experience, all of it satisfactory. Comes well recommended. Is described by reliable sources as sensitive, imaginative, purposeful, sincere, warm, and resourceful.

16. Alice Cherrington. Age 24. Single. B.S., City College; M.A., Pennsylvania State University. Has five years
N teaching experience. All of it is satisfactory. She is reliably described as impartial, energetic, thoughtful, humorous, agreeable, and sensible.

17. Louis Carpenter. Age 25. Single. B.S., Oswego State Teachers College; M.A., Teachers College, Columbia University. Has five years teaching experience. Is well recom-
N mended. Is reliably described as humorous, thoughtful, sensible, pleasant, agreeable, and consistent.

b

18. Ellen Harding. Age 24. Single. B.S., Pennsylvania State University; M.A., Pennsylvania State University.
B Has five years teaching experience, all of it satisfactory. Reliably described as efficient, refined, industrious, firm, moral, and healthy.

Hiring Teachers

Instructions: Imagine that you are a teacher in a public school in a medium-sized town. The superintendent of schools has appointed a committee of three teachers to study the backgrounds of teachers applying for teaching positions. You are a member of this committee. This year there are 5 positions to fill. There are 14 applicants for the 5 positions. Your committee must choose 5 of these 14 individuals to recommend to the superintendent for hiring.

Brief descriptions of the 14 applicants are given below. Note that all the applicants have had satisfactory training and appropriate degrees from reputable institutions. They are also all unmarried. Study the descriptions carefully. Then choose the 5 teachers whom you yourself would like to recommend.

In choosing the teachers, choose each one separately and independently. That is, do not allow your choice of one teacher to influence your choices of other teachers. To make sure that your choices are independent, imagine each time that you are choosing and recommending only that one teacher to the superintendent. Check the descriptions of the 5 teachers you have chosen.

1. Ruth Machson. Age 28. Has five years teaching experience, all of it satisfactory. Comes well recommended. B Is described by reliable sources as reliable, poised, conscientious, self-controlled, and sensible.

2. Dorothy Palter. Age 29. Has four years teaching experience. All of it is satisfactory. Her recommendations N are good. She has been reliably described as consistent, responsive, earnest, tactful, and good-natured.

3. Davida Lester. Age 27. Has five years teaching experience. All of this experience has been satisfactory, and B her recommendations are good. She has been reliably described as sensible, punctual, firm, healthy, and industrious.

4. Mary Helson. Age 28. Five years teaching experience, all of it satisfactory. Comes well recommended. Is B described reliably as industrious, firm, efficient, moral, and thorough.

5. Estelle Johnson. Age 29. Has six years teaching experience. This experience has all been satisfactory. Has good recommendations. Reliable sources describe her as friendly, tolerant, insightful, humorous, and agreeable.
A

6. Ruth Jackson. Age 28. Has five years teaching experience, all satisfactory. Comes well recommended. Reliable sources describe her as humorous, warm, agreeable, enthusiastic, and cheerful.
A

7. May Forsyth. Age 28. Seven years teaching experience. All of this experience has been satisfactory. Is well recommended. Reliable sources say that she is poised, industrious, self-controlled, thorough, and firm.
B

8. Louise Carpenter. Age 27. Has had four years experience, all of it satisfactory. Her recommendations are good. Reliable evidence indicates that she is flexible, sensitive, insightful, imaginative, and thoughtful.
A

9. Ellen Harding. Age 29. Has had six years teaching experience. This experience has been satisfactory, and her recommendations are good. Has been reliably described as conscientious, efficient, punctual, reliable, and sensible.
B

10. Ruth Simpson. Age 26. Has been teaching for five years. This experience has been satisfactory. Recommendations are good. Reliable sources say that she is energetic, cultivated, self-possessed, moderate, and secure.
N

11. Alice Cherrington. Age 27. Has been teaching for five years. This experience has been satisfactory. Comes well recommended. Evidence that is reliable indicates that she is agreeable, sympathetic, warm, tolerant, and original.
A

12. Doris Harrison. Age 28. Has six years teaching experience, all of it satisfactory. Her recommendations are good. Reliable sources describe her as original, patient, warm, thoughtful, and pleasant.
A

13. Emily Withers. Age 29. Seven years teaching experience, all of it satisfactory. Is well recommended. Has been reliably described as thoughtful, agreeable, imaginative, sympathetic, and kind.
A

14. Esther Johnson. Age 29. Has seven years teaching experience. All this experience has been satisfactory. Recommendations are good. She has been described as efficient, reliable, thorough, religious, and punctual.
B

Behavior Q-Sort

Normative Social

1. Discourages pupils who boast.
2. Speaks frequently about the necessity for good health habits.
3. Encourages pupils to work for civic improvement.
4. Tells pupils to urge their parents to vote.
5. Encourages pupils to participate in athletic activities.
6. Encourages students to participate in school banking.
7. Encourages pupils to participate in school elections.
8. Impresses upon students the importance of good manners.
9. Gives credit for participation in school clubs.
10. Tries to instill civic pride in pupils.
11. Encourages the need to dress neatly.
12. Encourages participation in extracurricular activities.
13. Stresses the importance of telling the truth.
14. Teaches pupils to keep their word.
15. Stresses the importance of correct speech.
16. Explains the necessity for honesty.
17. Instills proper respect for elders.
18. Tries to overcome racial and religious prejudice among pupils.
19. Teaches respect for all ethnic groups.
20. Teaches students to be sensitive to the needs of others.

Authority Discipline

21. Settles things once and for all when he reprimands a pupil.
22. Considers pupils' age in setting up classroom rules.
23. Reprimands pupils in a quiet friendly manner.
24. Discourages pupils from speaking out of turn.
25. Stresses the importance of obeying school rules.
26. Adheres to the rules he sets up.
27. Demands attention from students during lessons.
28. Hesitates to turn his behavior problems over to other school authorities.
29. Demands a quiet classroom.
30. Maintains order without apparent effort.
31. Shows his displeasure to students who do not make an effort.
32. Requires that pupils raise hands to be recognized.
33. Enforces school rules.
34. Impresses on pupils that as a teacher he deserves respect.
35. Requires work to be submitted punctually.

36. Handles embarrassing situations in an undisturbed manner.
37. In case of infraction of rules allows pupil to explain his side.
38. Is consistent in administering discipline.
39. Demands that pupils keep room neat and orderly.
40. Tries to reprimand pupils in private.

Interpersonal Relations

41. Keeps his temper when conducting class.
42. Avoids making derogatory personal remarks to pupils.
43. Shows sincere concern when confronted with personal problems of pupils.
44. Pays attention to student complaints.
45. Shows interest in the viewpoints of pupils.
46. Impresses on students that he values working with them.
47. Stresses respect for fellow students as much as for teachers.
48. Conscious of student feelings in all conferences.
49. Ignores his personal likes and dislikes in handling pupils.
50. Keeps appointments with students.
51. Helps individual pupils with emotional problems.
52. Makes self available to students who wish to speak to him.
53. Tries to foster student self-awareness.
54. Admits when pupils are in right.
55. Keeps his promises to students.
56. Gives kindly talks to pupils who need advice.
57. Helps former pupils.
58. Gives his own time to students in need.
59. Commends effort on the part of pupils.
60. Gives pupils deserved compliments.

Teaching Subject Matter

61. In his presentations, shows competent knowledge of subject-matter.
62. Gives assignments that foster learning.
63. Suggests aids to learning to supplement classroom activity.
64. Goes beyond the curriculum if class will benefit from it.
65. Conveys the goals of each lesson to his pupils.
66. Often gives pertinent illustrations in answering questions.
67. Usually corrects assigned work.
68. Gives explicit directions for the presentation of daily work.
69. Encourages pupils to be constructively critical in their approach to subject-matter.
70. Takes advantage of student interest in planning lessons.

71. Employs original devices in implementing the curriculum.
72. Brings material from related fields into lessons.
73. Presents well planned lessons.
74. Asks intelligent questions to supplement lectures.
75. Brings latest developments in subject-area into lessons.
76. Rarely strays from subject during lessons.
77. Conveys his enjoyment of subject-matter to pupils.
78. Presents material in different ways for slow pupils.
79. Provides individualized material for pupils as required.
80. Repeats often enough so that students learn subject-matter.

Teacher Behavior Rating Scale
Elementary School Form

Instructions: Given below are 30 teacher behaviors. You are to rate these behaviors according to your opinion of their importance for an ELEMENTARY SCHOOL TEACHER. Rate them according to your opinion of their importance for an elementary school teacher to implement in her classroom. Give each item a rating of from 1 to 7, according to its importance. (1) denotes little importance; (7) denotes a great deal of importance, (3) would be about average importance. You may use any rating from (1) to (7). Remember you are judging these behaviors according to their importance for ELEMENTARY SCHOOL TEACHERS.

A 1. Conscious of student feelings in all conferences.
B 2. Requires work to be submitted punctually.
A 3. Keeps his promises to students.
B 4. Repeats often enough so that students learn subject-matter.
B 5. Asks intelligent questions to supplement lectures.
A 6. Makes self available to students who wish to speak to him.
A 7. Pays attention to student complaints.
A 8. Encourages pupils to be constructively critical in their approach to subject-matter.
B 9. Often gives pertinent illustrations in answering questions.
B 10. Discourages pupils from speaking out of turn.
A 11. Tries to foster student self-awareness.
B 12. Enforces school rules.
A 13. Helps individual pupils with emotional problems.
B 14. Demands a quiet classroom.
B 15. Presents material in different ways for slow pupils.
B 16. Adheres to the rules he sets up.
B 17. Requires that pupils raise hands to be recognized.
A 18. Shows sincere concern when confronted with personal problems of pupils.
A 19. Admits when pupils are in right.
B 20. Conveys his enjoyment of subject-matter to pupils.
B 21. Presents well planned lessons.
A 22. Shows interest in the viewpoints of pupils.
A 23. Keeps appointments with students.
A 24. Impresses on students that he values working with them.
B 25. Demands attention from students during lessons.

A 26. In case of infraction of rules allows pupil to explain his side.

B 27. In his presentations, shows competent knowledge of subject-matter.

B 28. Maintains order without apparent effort.

A 29. Avoids making derogatory personal remarks to pupils.

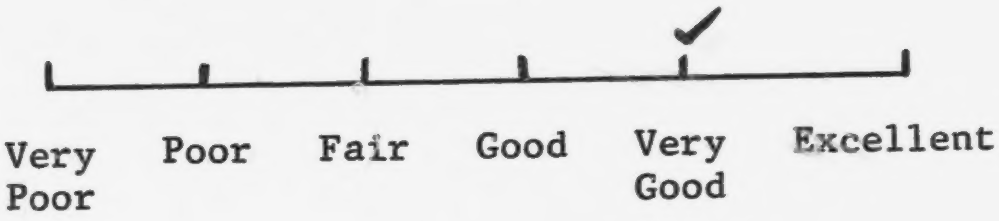
A 30. Teaches students to be sensitive to the needs of others.

Teachers at Work

In the following pages you are presented with observations of teachers at work. You are asked to act like an observer who enters classrooms, observes teachers, and rates them. However, instead of you going into the classroom, we provide you with observations made by competent observers and ask you to rate each teacher on a scale ranging from *Very Poor* to *Excellent*.

We realize that it is difficult to evaluate a teacher on the basis of one observation. Yet, when the need arises, people are able to make evaluations even when little information is provided.

At the bottom of each observation you will find a scale on which you will indicate your evaluation of the teacher by placing a check on the scale. If, for example, you think the teacher is *Very Good* you will place a check on the scale thus:



Do this for all observations. Remember, each observation deals with a different teacher. Therefore, evaluate each teacher independently of all other teachers. That is, you should not let your evaluation of one teacher affect your evaluation of any other teacher.

Thank you for your cooperation.

Fifth Grade

Teacher: What did you see in the newspapers yesterday of nationwide importance?

Many answers. One child says, "The coal strike." From this the teacher led a discussion about coal - where it comes from, how it is formed, etc.

Teacher: What subject area would this come under for our study today?

Child: Social studies

Teacher: What word can you think of that rhymes with coal?

Child: Goal

Teacher: Good. Today we shall study the 'oa' family and learn to pronounce and spell words of this family. What subject area will this come under?

After many guesses, one child says, "language arts".

Teacher: Quite right. Language arts.

Very Poor	Poor	Fair	Good	Very Good	Excellent

Fourth Grade

The Good Citizens Club is holding a meeting . . . Officers are elected by the group. The purpose of the club is to teach children to be better citizens. The order of procedure is as follows: the president . . . bangs her gavel on the desk and . . . says: "The meeting of the Good Citizens Club will come to order." Each child then takes from his or her desk a booklet whose title is *All About Me* . . . and places it on top of his desk. The vice-president calls the name of a child, gets the child's booklet, and places it on the teacher's desk. The president then calls on the child and asks, "Robert, have you been a good citizen this week?" The president says, "Name some of the good things you have done," and Robert tries to recall some, like opening doors for people, running errands etc. Next the president asks the class if it remembers any good things the child has done. Each point is written in the child's booklet by the teacher. The president then says to Robert, "Name the bad things you have done . . ." Robert reports the wrongs he has committed during the week, and the class is asked to contribute information about his behavior. This too is written in the booklet by the teacher. When one child reports a misdemeanor of another the teacher asks for witnesses before recording the incident.

Very Poor	Poor	Fair	Good	Very Good	Excellent

Please Note: Although this is a teacher's own account, we would like you to treat it in the manner you treat the observations.

A Teacher's Account

The following is an outline of how I plan to have an indoor drinking fountain installed this school term through cooperative planning and the democratic process. In launching the project those who are in charge must take a lead in planning and interesting each person to a degree that he will participate in the study of school problems and in the formation of school policy and program.

September 7. The first meeting of the Willing Workers Club will be held with P.T.A. members present. Plans will be made to do something tangible for the school during the term. Out of the many suggestions which the club will give, the project of installing an indoor fountain will be decided upon.

September 14. At the second meeting of the club, the city nurse will be invited to give a talk on the importance of water in the body and the unsanitary fountain and results. Community needs will be discussed by the group.

The committee on contacting key people of the community will make its report. The ways and means committee will become active in the second meeting. The money will be raised at the end of four weeks and the fountain will be installed as a result of cooperative planning by a democratic community.

Very Poor	Poor	Fair	Good	Very Good	Excellent

Fourth Grade

After playtime. Jim is crying.

Teacher: What's the matter, Jim?

Jim: No one wants to play with me. They always keep me out of all the games.

Teacher: Can you think of any reason? Can you think of something you have done?

No answer.

Teacher: Class, may I have your attention. Jim, here, complains that no one wants to play with him. Now, let's be reasonable, let's discuss it like grown-ups. The best thing is not to keep things inside but tell the other person how one feels. I suggest you tell Jim what is bothering you and I am sure we can straighten things out.

Several children start speaking together.

Teacher: One minute, please. Everyone will get his chance. Just be patient.

Tom: Yesterday Jim pushed me and poked me with the elbow. He always does it. Why should I play with him?

Linda: When he has something, he never wants to share.

Rachel: He always wants my things.

Robert: He is a cry-baby.

After all the children were given a chance to explain, teacher says: "You see, Jim, they have all kinds of reasons. I am sure now that you have heard what they don't like you will not do it again. And you people, I want you to help Jim. You told him what you think. Now let's all help him be one of us. I am sure it will make us all feel better. We are all going to be good friends. Aren't we?

A number of children nod.

Very Poor	Poor	Fair	Good	Very Good	Excellent

Fifth Grade

The children are taking turns reading to the class stories they have made up. Charlie's is called The Unknown Guest.

"One dark, dreary night, on a hill a house stood. This house was forbidden territory for Bill and Joe, but they were going in anyway. The door creaked, squealed, slammed. A voice warned them to go home. They went upstairs. A stair cracked. They entered a room. A voice said they might as well stay and find out now; and their father came out. He laughed and they laughed, but they never forgot their adventure together."

Teacher: Are there any words that give you the mood of the story?

Lucy: He could have made the sentences a little better . . .

Gert: His sentences are too short . . .

Charlie and Jeanne have a discussion about the position of the word "stood" in the first sentence.

Teacher: Wait a minute; some people are forgetting their manners . . .

Jeff: About the room: the boys went up the stairs and one "cracked," then they were in the room. Did they fall through the stairs, or what?

The teacher suggests Charlie make that a little clearer . . .

Teacher: We still haven't decided about the short sentences.

Gwynne: I wish he had read with more expression instead of all at one time.

Rachel: Not enough expression.

Teacher: Charlie, they want a little more expression from you. I guess we have given you enough suggestions for one time, Charlie, haven't we?

Very Poor	Poor	Fair	Good	Very Good	Excellent

Sixth Grade. *Scene*: *Weekly class meeting*.

Sally, the chairman, calls for the secretary's report. Items mentioned are chalk on walls outside of school, sale of Christmas seals, one-cent fine for leaving things on desk.

Teacher: (to secretary) Say "carried" rather than "voted through". (To chairman): I think you forgot your standing committee.

Judy reminds the group to bring things for the Junior Red Cross packages.

Teacher asks Judy to repeat what they need for the packages.

Chairman calls for old business.

Teacher: I think Wyland needs to give a report on duties.

Wyland reports.

There is some discussion about watering plants.

Teacher: Don't you think we should have a council report?

Council report follows.

Very Poor	Poor	Fair	Good	Very Good	Excellent